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No. 172

BIBLIOGRAPHY AND INDEX OF NORTH AMERICAN
GEOLOGY, PALEONTOLOGY, PETROLOGY AND
MINERALOGY FOR 1899.—WEEKS

WASHINGTON
GOVERNMENT PRINTING OFFICE
1900

UNITED STATES GEOLOGICAL SURVEY

CHARLES D. WALCOTT, DIRECTOR

BIBLIOGRAPHY AND INDEX

OF

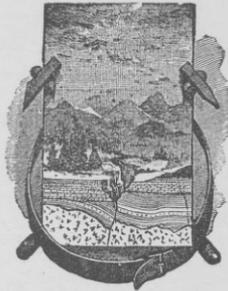
NORTH AMERICAN GEOLOGY, PALEONTOLOGY, PETROLOGY
AND MINERALOGY

FOR

THE YEAR 1899

BY

FRED BOUGHTON WEEKS



WASHINGTON
GOVERNMENT PRINTING OFFICE
1900

LETTER OF TRANSMITTAL

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BIBLIOGRAPHY AND INDEX OF NORTH AMERICAN
GEOLOGY, PALEONTOLOGY, PETROLOGY, AND
MINERALOGY FOR THE YEAR 1899

By FREDERICK B. WEEKS

LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
UNITED STATES GEOLOGICAL SURVEY,
DIVISION OF GEOLOGY,
Washington, D. C., June 12, 1900.

SIR: I have the honor to transmit herewith the manuscript of a Bibliography and Index of North American Geology, Paleontology, Petrology, and Mineralogy for the Year 1899, and to request that it be published as a bulletin of the Survey.

Very respectfully,

F. B. WEEKS.

Hon. CHARLES D. WALCOTT,
Director United States Geological Survey.

BIBLIOGRAPHY AND INDEX OF NORTH AMERICAN GEOLOGY, PALEONTOLOGY, PETROLOGY, AND MINERALOGY FOR THE YEAR 1899.

By FRED BOUGHTON WEEKS.

INTRODUCTION.

The method of preparing and arranging the material of the Bibliography and Index for 1899 is similar to that adopted for the previous publications on this subject (Bulletins Nos. 130, 135, 146, 149, 156, and 162). Several papers that should have been entered in the previous bulletins are here recorded and the date of publication is given with each entry.

Bibliography.—The bibliography consists of full titles of separate papers, classified by authors, an abbreviated reference to the publication in which the paper is printed, and a brief summary of the contents, each paper being numbered for index reference. The extent of papers less than a single page in length is indicated as $\frac{1}{2}$ p., 5 l (lines).

Index.—The subject headings, their subdivision and arrangement, are shown in the Classified Key to the Index. They comprise geographic, geologic, mineralogic, paleontologic, and petrologic subdivisions. Under Economic Geology is given a list of the useful minerals and ores described in publications examined; under Mineralogy, a list of minerals described in such publications; under Paleontology, a list of genera and species of fossils therein described, and under Petrology, a list of rocks described, reference being made in each case, by author's name and number of article in the Bibliography, to the paper in which the fossil, mineral, or rock is described.

BIBLIOGRAPHY AND INDEX OF NORTH AMERICAN
GEOLOGY, PALEONTOLOGY, PETROLOGY, AND
MINERALOGY FOR THE YEAR 1900

By PAUL HENNING, *Wash.*

INTRODUCTION

The method of preparing and arranging the material of the Bibliography and Index for 1900 is similar to that adopted for the previous publications on this subject (Bull. U. S. Geol. Surv., 1891, 1892, 1893, and 1894). Several papers that should have been included in the previous bulletins are here recorded and the date of publication is given with each entry.

Abbreviations.—The bibliography consists of full titles of papers, papers classified by authors, an alphabetical reference to the authors, and a brief summary of the contents of each paper. The titles in which the paper is printed, and a brief summary of the contents, each paper being numbered for index reference. The titles of papers less than a single page in length are followed by a brief summary. **Index.**—The subject headings for index reference and arrangement are shown in the classified list in the Index. They comprise geographic, geologic, mineralogic, petrologic, and petrographic divisions. Under historical geology is given a list of the names of authors and their publications examined under historical geology. A list of mineralogic and petrologic publications under historical geology, and a list of books, pamphlets, reports, maps, etc., in each case, in which the basal mineral or rock is described.

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B.

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- 406 — Observations on some prospects and mines around Brecken-
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- 408 — Coal fields of Colorado.
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Geol. Soc. Am. Bull., vol. x, pp. 193-198, pl. xxi, 1899.
Describes glacial phenomena of the region.
- 641 — Gold mining in the Klondike district [Alaska].
Abstracts: Am. Geol., vol. xxiii, p. 102 (8 l.); Science, new ser., vol. ix, p. 106 (8 l.); Eng. and Min. Jour., vol. lxxvii, p. 116, 1899.

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- 642 **Udden** (Johan August). Geology of Muscatine County [Iowa].
Iowa Geol. Surv., vol. ix, pp. 251-380, pls. v-vii, figs. 30-40, and geologic map, 1899.
Describes the physiographic features, the character and occurrence of the Silurian, Devonian, Carboniferous, and Pleistocene subdivisions, and the occurrence of economic products.
- 643 — The Sweetland Creek beds.
Jour. of Geol., vol. vii, pp. 65-78, 1899.
Gives several sections of the beds and describes their distribution, structural relations, and fauna.
- 644 — *Dipterus* in the American Middle Devonian.
Jour. of Geol., vol. vii, pp. 494-495, 1 fig., 1899.
Describes occurrence of the *Dipterus calvini* Eastman in the Devonian of Iowa.
- 645 — Some Cretaceous drift pebbles in northern Iowa.
Am. Geol., vol. xxiv, pp. 389-390, 1899.
- 646 — Diatomaceous earth in Muscatine County [Iowa].
Iowa Acad. Sci. Proc., vol. vi, pp. 53 ($\frac{1}{2}$ p.), 1899.
Brief note on occurrence.

- 647 **Udden** (Johan August). The Pine Creek conglomerate [Iowa].
Iowa Acad. Sci., vol. vi, pp. 54-56, 1899.
Describes occurrence and discusses age.
- 648 **Upham** (Warren). The geology of Aitkin County [Minnesota].
Minn. Geol. and Nat. Hist. Surv., Final Rep., vol. iv., pp. 25-54, pl. lxii, figs. 2-6, 1899.
Describes the physiography, occurrence of eruptive and Cretaceous rocks, and glacial history of the county.
- 649 — The geology of Cass County and of the part of Crow Wing County northwest of the Mississippi River [Minnesota].
Minn. Geol. and Nat. Hist. Surv., Final Rep., vol. iv, pp. 55-81, figs. 7-8, 1899.
Describes the physiographic and geologic features and glacial history of the county.
- 650 — Geology of the region around Red Lake and southward to White Earth [Minnesota].
Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, pp. 155-165, pl. VV, 1899.
Describes physiographic and glacial features of the region.
- 651 — Evidence of epeirogenic movements causing and terminating the Ice age.
Geol. Soc. Am. Bull., vol. x, pp. 5-10, 1899.
Discusses evidences of high elevation and late glacial depression and its termination of the Ice age.
- 652 — Glacial and modified drift in Minneapolis, Minn.
Abstracts: Am. Assoc. Adv. Sci., Proc., vol. xlviii, p. 229 ($\frac{1}{2}$ p.); Science, new ser., vol. x, p. 490 ($\frac{1}{2}$ p.), 1899.
- 653 — Greatest area and thickness of the North American ice sheet.
Abstracts: Am. Assoc. Adv. Sci., Proc., vol. xlviii, pp. 230-231; Science, new ser., vol. x, p. 491, 1899.
- 654 — [Review of "South Dakota Geological Survey Bull. No. 2"].
Am. Geol., vol. xxiii, p. 192 ($\frac{3}{4}$ p.), 1899.
- 655 — [Review of "The loess of aqueous origin," by B. Shimek].
Am. Geol., vol. xxiii, pp. 192-193, 1899.
- 656 — Modified drift in the Champlain epoch.
Am. Geol., vol. xxiii, pp. 319-324, 1899.
Describes occurrence, character, and classification of drift deposits.
- 657 — [Review of "Iron making in Alabama," by W. B. Phillips.]
Am. Geol., vol. xxiii, pp. 328-329 ($\frac{1}{2}$ p.), 1899.
- 658 — [Review of "A guide to the study of the geological collections of the New York State Museum," by F. J. H. Merrill.]
Am. Geol., vol. xxiii, p. 329 ($\frac{1}{2}$ p.), 1899.

- 659 **Upham** (Warren). Englacial drift in the Mississippi Basin.
Am. Geol., vol. xxiii, pp. 369-374, 1899.
Describes occurrence and character of englacial drift in Hudson Bay and Upper Mississippi Valley regions.
- 660 — [Review of "Summary report of the Geological Survey department of Canada for the year 1898," by G. M. Dawson.]
Am. Geol., vol. xxiii, pp. 384-385, 1899.
- 661 — [Review of "Wells of northern Indiana," by Frank Lev-
erett.]
Am. Geol., vol. xxiii, p. 385 ($\frac{1}{2}$ p.), 1899.
- 662 — [Review of "The fossil bison of North America," by Fred-
erick A. Lucas.]
Am. Geol., vol. xxiii, p. 385 (5 l.), 1899.
- 663 — [Review of "West Virginia Geological Survey, vol. i," by
I. C. White.]
Am. Geol., vol. xxiii, pp. 387-389, 1899.
- 664 — Glacial history of the New England Islands, Cape Cod, and
Long Island.
Am. Geol., vol. xxiv, pp. 79-92, 1899.
Describes epeirogenic movements causing glaciation, the subsequent deformation of the region, and the character and distribution of the glacial deposits. Includes a bibliography of the subject.
- 665 — [Review of "Eighteenth Annual Report of the United States
Geological Survey".]
Am. Geol., vol. xxiv, pp. 122-125, 1899.
- 666 — [Review of "Iowa Geological Survey, vol. ix".]
Am. Geol., vol. xxiv, pp. 182-184, 1899.
- 667 — [Review of "Nineteenth Annual Report of the United States
Geological Survey" and "Geological Survey of New Jersey,
Annual Report for the year 1898."]
Am. Geol., vol. xxiv, pp. 251-253, 1899.
- 668 — [Reviews of "Some Glacial wash-plains of southern New
England," by J. B. Woodworth, and "The mechanical
composition of wind deposits," by J. A. Udden.]
Am. Geol., vol. xxiv, pp. 381-382, 1899.

V.

- 669 **Van Hise** (C. R.). Introduction. [The Crystal Falls iron-bearing
district of Michigan.]
U. S. Geol. Surv., Mon. XXXVI, pp. xvii-xxxvi; 19th Ann. Rept., Pt. III, pp. 9-18, 1899.
Describes the general character, occurrence, structure, and correlation of the Upper and Lower Huronian series in this region.

- 670 **Van Hise** (C. R.). The naming of rocks.
 Jour. of Geol., vol. vii, pp. 686-699, 1899.
 Discusses criteria and proposes a plan for naming rocks.
- 671 **Vaughan** (T. Wayland). Geologic notes on the Wichita Mountains, Oklahoma, and the Arbuckle Hills, Indian Territory.
 Am. Geol., vol. xxiv, pp. 41-55, 1899.
 Describes the physiographic features of the region, the character and occurrence of Silurian and Carboniferous strata and igneous rocks.
- 672 — Some Cretaceous and Eocene corals from Jamaica.
 Harvard Coll., Mus. Comp. Zool., Bull., vol. xxxiv, Appendix, pp. 227-250, 1899.
 Reviews the literature on the corals from this region, and describes material collected by R. T. Hill.
- 673 **Veatch** (Arthur C.). The Shreveport area [Louisiana].
 La. Exp. Stat., Part V, pp. 149-208, pls. xiv-xix, 1899.
 Describes the physiography of the region and the occurrence of Tertiary deposits.
- 674 — The five islands [Louisiana].
 La. Exp. Stat., Part V, pp. 209-262, pls. xx-xxxi, 1899.
 Describes the topographic and geologic features of the region and the occurrence of salt.
- 675 — **Harris** (G. D.) and. General geology [of Louisiana].
 See Harris (G. D.) and Veatch (A. C.). No. 283.
- 676 — — Historical review [of geological literature of Louisiana].
 See Harris (G. D.) and Veatch (A. C.). No. 282.
- 677 **Vermeule** (C. C.). Water supply from wells [New Jersey].
 N. J. Geol. Surv., Rept. for 1898, pp. 145-182, figs. 11-20, 1899.
 Describes conditions which produce flowing wells and the progress of inflow through material about a well.
- 678 **Vogdes** (A. W.). Biographical sketch of Issachar Cozzens, jr.
 Am. Geol., vol. xxiv, pp. 327-328, pl. xv, 1899.
 Gives a sketch of his life.

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- 679 **Wagner** (George). On Tetracaulodon (Tetrabelodon) shepardii Cope.
 Kan. Univ. Quart., vol. viii, pp. 99-103, pls. xxiv-xxv, 1899.
 Describes material from the Loup Fork beds of Kansas and reviews literature of the subject.
- 680 **Walcott** (Charles Doolittle). Report of the Director of the United States Geological Survey for the fiscal year ending June 30, 1899.
 U. S. Geol. Surv., 20th Ann. Rept., Pt. I., 551 pp., 2 pls., 1899.
 Gives a general review of the work undertaken by the Survey during the year 1898-99.

- 681 **Walcott** (Charles Doolittle). Pre-Cambrian fossiliferous formations.
 Geol. Soc. Am., Bull., vol. x, pp. 199-244, pls. xxii-xxviii, 1899.
 Reviews: Am. Jour. Sci., 4th ser., vol. viii, pp. 78-79; Science, new ser., vol. ix, p. 143 ($\frac{1}{3}$ p.), 1899.
 Describes the character and occurrence of pre-Cambrian strata and the fossils collected.
- 682 — Cambrian fossils [Yellowstone National Park].
 U. S. Geol. Surv., Mon. XXXII, Pt. II, pp. 440-478, pls. lx-lxv. 1899.
 Gives a summary of the faunas and descriptions of the Cambrian fossils collected.
- 683 — Cambrian Brachiopoda, Obolus, and Lingulella, with description of new species.
 U. S. Nat. Mus., Proc., vol. xxi, pp. 385-420, pls. xxvi-xxviii, 1899.
 Published in 1898.
- 684 — Fossil Medusæ.
 Abstracts: Am. Geol., vol. xxii, pp. 57-61; Jour. of Geol., vol. vii, p. 99, 1899.
 See Bibliography and Index for 1898. No. 844.
- 685 **Walker** (T. L.). Crystal symmetry of the mica group.
 Am. Jour. Sci., 4th ser., vol. vii, pp. 199-204, figs. 1-6, 1899.
 Describes methods of study of crystal symmetry and discusses evidence of some of the micas belonging to the triclinic system.
- 686 — Causes of variation in the composition of igneous rocks.
 Review: Am. Geol., vol. xxiii, pp. 327-328 ($\frac{1}{3}$ p.), 1899.
- 687 **Ward** (H. L.). New Kansas meteorite.
 Am. Jour. Sci., 4th ser., vol. vii, p. 233, 1 fig., 1899.
 Briefly describes the material.
- 688 — Notice of a new meteorite from Murphy, Cherokee County, North Carolina.
 Am. Jour. Sci., 4th ser., vol. viii, pp. 225-226, pl. iv, 1899.
 Describes occurrence and character of the material.
- 689 — Notice of an aerolite that recently fell at Allegan, Michigan.
 Am. Jour. Sci., 4th ser., vol. viii, pp. 412-414, 1899.
 Describes occurrence and character of the material.
- 690 **Ward** (Lester F.). The Cretaceous formation of the Black Hills as indicated by the fossil plants (with the collaboration of W. P. Jenney, W. M. Fontaine, and F. H. Knowlton).
 U. S. Geol. Surv., 19th Ann. Rept., Pt. II, pp. 521-946, pls. liii-clxxii, figs. 117-122, 1899. Review: Jour. of Geol., vol. vii, pp. 814-815, 1899.
 Reviews literature on the Black Hills, gives a historical sketch of the discovery of the fossils and numerous sections of the strata and descriptions of the fossils.

- 691 **Ward** (Lester F.). Descriptions of the species of Cycadeoidea or fossil Cycadean trunks thus far determined from the Lower Cretaceous rim of the Black Hills.
U. S. Nat. Mus., Proc., xxi, pp. 195-229, 1899. Published in 1898.
- 692 **Warren** (C. H.), **Penfield** (S. L.) and. Some new minerals from the zinc mines at Franklin, N. J., and note concerning the chemical composition of ganomalite.
See Penfield (S. L.) and Warren (C. H.), No. 522.
- 693 ——— Chemical composition of parisite and a new occurrence of it in Ravalli Co., Montana.
See Penfield (S. L.) and Warren (C. H.), No. 521.
- 694 **Washington** (Henry S.). The petrographical province of Essex County, Massachusetts, II.
Jour. of Geol., vol. vii, pp. 53-64, 1899.
Describes the megascopic, microscopic, and chemical characters of essexite, diorite, and gabbro.
- 695 ——— The petrographical province of Essex County, Massachusetts, III.
Jour. of Geol., vol. vii, pp. 105-121, 1899.
Describes the petrographic and chemical character of aplite, quartz-syenite-porphry, paisanite, sölvbergite, tinguaita, and dike rocks.
- 696 ——— The petrographical province of Essex County, Massachusetts, IV.
Jour. of Geol., vol. vii, pp. 284-294, 1899.
Describes petrographic and chemical character of camptonite, diabase, rhyolite, and keratophyr.
- 697 ——— Petrographical province of Essex County, Massachusetts, V. (General discussion and conclusion.)
Jour. of Geol., vol. vii, pp. 463-482, pl. vi, 1899. Review: Am. Geol., vol. xxiv, pp. 255-257, 1899.
Gives a general summary of previous papers.
- 698 **Watson** (Thomas L.). Some notes on the lakes and valleys of the Upper Nugsuak Peninsula, North Greenland.
Jour. of Geol., vol. vii, pp. 655-666, 3 figs., 1899.
Describes physiographic features of the region and the occurrence and origin of the lake.
- 699 ——— Some further notes on the weathering of diabase in the vicinity of Chatham, Virginia.
Am. Geol., vol. xxiv, pp. 355-369, 1899.
Discusses the evidences of the cause of the considerable loss of alumina in the change from fresh to decomposed diabase. Includes many chemical analyses.
- 700 **Watts** (W. L.). Notes on the oil-yielding formations of California.
Min. and Sci. Press, vol. lxxix, pp. 144-146 (12 figs.), pp. 172-173 (3 figs.), 1899. Describes character and occurrence.

- 701 **Weed** (Walter Harvey). Fort Benton folio, Montana.
U. S. Geol. Surv., Geol. Atlas of U. S., folio No. 55, 1899.
Describes the general geologic features and the occurrence and character of the Archean, Cambrian, Silurian, Devonian, Carboniferous, Juratrias, Cretaceous, Pleistocene, and igneous rocks. Discusses the geologic history of the region, and describes the occurrence of coal, gold, and silver. Includes topographic maps and columnar sections.
- 702 — Little Belt Mountains folio, Montana.
U. S. Geol. Surv., Geol. Atlas of U. S., folio No. 56, 1899.
Describes the physiography, the occurrence, and character of the Archean, Algonkian, Cambrian, Silurian, Devonian, Carboniferous, Juratrias, Cretaceous, metamorphic, and igneous rocks, the general geologic relations and history of the region, and the occurrence of coal, silver, and sapphires. Includes topographic and geologic maps and columnar sections.
- 703 — Geology of the southern end of the Snowy Range [Yellowstone National Park].
U. S. Geol. Surv., Mon. XXXII, Pt. II, pp. 203-214, pl. xxvi, 1899.
Describes the general physiographic and geologic features of the region.
- 704 — Granite rocks of Butte, Montana, and vicinity.
Jour. of Geol., vol. vii, pp. 737-750, 1899.
Describes occurrence and petographic and chemical characters of the granitic rocks.
- 705 — Laccoliths and bysmaliths.
Abstract: Science, new ser., vol. x, pp. 25-26, 1899.
- 706 — **Iddings** (J. and P.) Descriptive geology of the northern end of the Teton Range [Yellowstone National Park].
See Iddings (J. P.) and Weed (W. H.). No. 355.
- 707 — — Descriptive geology of the Gallatin Mountains [Yellowstone National Park].
See Iddings (J. P.) and Weed (W. H.). No. 354.
- 708 **Weeks** (Fred Boughton). Bibliography and index of geology, paleontology, petrology, and mineralogy for 1898.
U. S. Geol. Surv., Bull., No. 162, 163 pp., 1899.
Contains list of titles of papers arranged alphabetically by authors' names and a subject index.
- 709 — The duplication of geologic formation names.
Jour. of Geol., vol. vii, pp. 297-299; Am. Geol., vol. xxii, pp. 266-267; Science, new ser., vol. ix, pp. 625-626, 1899.
Gives reference to literature showing the duplication of long-established names in recent publications.
- 710 — [A reconnaissance in Jackson Basin, northwest Wyoming.]
Abstract: Science, new ser., vol. ix, p. 454 ($\frac{1}{3}$ p.), 1899.

- 711 **Weller** (Stuart). Kinderhook faunal studies, I. The fauna of the Vermicular sandstone at Northview, Webster County, Missouri.
St. Louis Acad. Sci., Trans., vol. ix, No. 2, pp. 9-51, pls. ii-vi, 1899.
Describes the occurrence of the formation and the character of the fossils collected.
- 712 — [Review of "Fossil Medusæ," by C. D. Walcott.]
Jour. of Geol., vol. vii, p. 99, 1899.
- 713 — [Review of "Fifteenth Annual Report of the State Geologist [New York] for the year 1895, vol. i."]
Jour. of Geol., vol. vii, pp. 209-213, 1899.
- 714 — A peculiar Devonian deposit in northeastern Illinois.
Jour. of Geol., vol. vii, pp. 483-488, 3 figs., 1899.
Describes occurrence of a Devonian fauna in crevices of Niagara strata.
- 715 — A century of progress in Paleontology.
Jour. of Geol., vol. vii, pp. 496-508, 1899.
Gives a general historical sketch of the development of the science of Paleontology.
- 716 — [Review of "The Paleozoic reticulate sponges constituting the family Dictyospongiadæ," by James Hall and J. M. Clarke.]
Jour. of Geol., vol. vii, pp. 717-718, 1899.
- 717 **Westgate** (Lewis G.). A granite-gneiss in central Connecticut.
Jour. of Geol., vol. vii, pp. 638-654, 4 figs., 1899.
Describes occurrence, the associated rocks, and its megascopic and microscopic characters.
- 718 **Wheeler** (William Morton). George Baur's life and writings.
Am. Nat., vol. xxxiii, pp. 15-30, 1899.
Gives a sketch of his life and list of his publications.
- 719 **White** (David). Report on fossil plants from the McAlester coal field, Indian Territory, collected by Messrs. Taff and Richardson in 1897.
U. S. Geol. Surv., 19th Ann. Rept., Pt. III, pp. 457-534, pls. lxvii-lxviii, 1899.
Describes the geographic distribution of the fossil plants and their occurrence in the coal beds, and compares these floras with those from the coal field of Arkansas. Includes descriptions of the species collected.
- 720 — Fossil flora of the Lower Coal Measures of Missouri.
U. S. Geol. Surv., Mon. XXXVII, 467 pp., 73 pls., 1899.
Describes the stratigraphy of the plant-bearing beds, the characters of the fossils collected and the relations of the faunas.
- 721 — [Review of "Fossil plants, for students of botany and geology," by A. C. Seward.]
Am. Geol., vol. xxiii, pp. 195-197, 1899.

- 722 **White** (I. C.). Petroleum and natural gas [West Virginia].
West. Va. Geol. Surv., vol. i, pp. 123-378, 1899. Review: Am. Geol., vol. xxiii, pp. 387-389, 1899.
Gives a historical sketch of the subject and describes the occurrence of petroleum and natural gas, including sections of many wells.
- 723 — Origin of grahamite.
Geol. Soc. Am., Bull., vol. x, pp. 277-284, pl. xxix, 1899. Reviews: Am. Geol., vol. xxiii, p. 101 ($\frac{1}{2}$ p.), vol. xxiv, pp. 253-254; Science, new ser., vol. ix, p. 138 ($\frac{1}{2}$ p.), 1899.
Describes occurrence and origin.
- 724 **White** (Theodore G.). Faunas of Upper Ordovician in Lake Champlain Valley.
Abstracts: Am. Geol., vol. xxiii, p. 96 ($\frac{1}{4}$ p.); Science, new ser., vol. ix, p. 102 ($\frac{1}{2}$ p.), 1899.
- 725 **Whiteaves** (J. F.). Postscript to "A description of new genus and species of Cystideans from the Trenton limestone at Ottawa."
Can. Rec. Sci., vol. vii, pp. 395-396, 1898.
Proposes generic name *Steganoblastus* for that of *Astrocytites canadensis*.
- 726 — On some remains of a sepia-like cuttlefish from the Cretaceous rocks of the South Saskatchewan.
Can. Rec. Sci., vol. vii, pp. 459-461, pl. ii, 1898.
Describes *Actinosepia canadensis* n. gen. et. sp.
- 727 — Note on a fish tooth from the Upper Arisaig series of Nova Scotia.
Can. Rec. Sci., vol. vii, pp. 461-462, 1 fig., 1898.
- 728 — A recent discovery of rocks of the age of the Trenton formation at Akpatok Island, Ungava Bay, Ungava.
Am. Jour. Sci., 4th ser., vol. vii, pp. 433-434, 1899.
Gives a list of the fossils collected and discusses their relation to the fauna of the Manitoba.
- 729 — The Devonian system in Canada.
Am. Assoc. Adv. Sci., Proc., vol. xlviii, pp. 193-233; Am. Geol., vol. xxiv, pp. 210-240; Science, new ser., vol. x, pp. 402-412, 430-438, 1899.
Gives a historical sketch of the study of Devonian strata occurring in the several provinces of Canada.
- 730 **Whitfield** (R. P.). Assisted by E. O. Hovey. Catalogue of the type figured specimens in the Paleontological collection of the geological department, American Museum of Natural History.
Am. Mus. Nat. Hist., Bull., vol. xi, pp. 74-188, 1899.
- 731 **Whittle** (Charles L.). The building and road stones of Massachusetts.
The Mineral Industry for 1898, vol. vii, pp. 637-642, 1899.
Describes character and occurrence of granite, sandstone, and other building stones.

- 732 **Whittle** (Charles L.) The Buffalo Hump Mining Camp, Idaho. Eng. and Min. Jour., vol. lxviii, pp. 215-216, 1899. Describes general geologic structure of the region.
- 733 **Wieland** (G. R.). A study of some American fossil cycads, Part I. The male flower Cycadeoidea. Am. Jour. Sci., 4th ser., vol. vii, pp. 219-226, 2 figs., pls. ii-iv, 1899. Discusses age of the cycad-bearing beds and describes *Cycadeoides ingens* Ward. Includes references to literature.
- 734 — A study of some American fossil cycads, Part II. The leaf structure of Cycadeoidea. Am. Jour. Sci., 4th ser., vol. vii, pp. 305-308, pl. vii, 1899.
- 735 — A study of some American fossil cycads. Part III. The female fructification of Cycadeoidea. Am. Jour. Sci., 4th ser., vol. vii, pp. 383-391, pls. viii-x, 20 figs., 1899.
- 736 — The terminology of vertebral centra. Am. Jour. Sci., 4th ser., vol. viii, pp. 163-164, 1899. Gives a table of nomenclature of vertebræ.
- 737 — Cycadean Monœcism. Am. Jour. Sci., 4th ser., vol. viii, p. 164 ($\frac{2}{3}$ p.), 1899.
- 738 **Wilcox** (Walter D.). A certain type of lake formation in the Canadian Rocky Mountains. Jour. of Geol., vol. vii, pp. 247-260, pl. ii, 6 figs., 1899. Describes glacial phenomena in Rocky Mountains of British Columbia.
- 739 **Williams** (H. S.). [Review of "Maryland Geological Survey, vol. i;" "The Lower Cretaceous Gryphæas of the Texas region," by R. T. Hill and T. Wayland Vaughan; "Bibliographic Index of North American Carboniferous invertebrates," by Stuart Weller; "Contributions to the Tertiary fauna of Florida," by W. H. Dall; "Contributions to Canadian paleontology," by J. F. Whiteaves; "Geological Survey of Canada, vol. ix;" and "Report on the Doobaunt, Kogan, and Ferguson rivers and the northwest coast of Hudson Bay," etc., by J. B. Tyrrell.] Am. Jour. Sci., 4th ser., vol. vii, pp. 69-72, 1899.
- 740 — [Review of "New facts regarding Devonian fishes. Dentition of Devonian Ptyctodontidea;" "Some new points in Dinichthyid osteology," by C. R. Eastman; "Geological sketch of San Clemente Island," by W. S. T. Smith; "Geology of Edwards Plateau and Rio Grande Plain," etc., by R. T. Hill and T. W. Vaughan, "South Dakota Geological Survey Bulletin No. 2."] Am. Jour. Sci., 4th ser., vol. vii, pp. 314-316, 1899.

- 741 **Williams** (H. S.). Occurrence of *Paleotrochis* in volcanic rocks in Mexico.
 Am. Jour. Sci., 4th ser., vol. vii, pp. 335-336, 1899. Review: Am. Geol., vol. xxiv, p. 181 ($\frac{1}{3}$ p.), 1899.
 Describes material showing the origin of *Paleotrochis*.
- 742 — [Review of "The age of the Franklin white limestone of Sussex County, New Jersey," by J. E. Wolff and A. H. Brooks; "The development of *Lytoceras* and *Phylloceras*," by J. P. Smith.]
 Am. Jour. Sci., 4th ser., vol. vii, pp. 397-398, 1899.
- 743 — Devonian interval in northern Arkansas.
 Am. Jour. Sci., 4th ser., vol. viii, pp. 139-152, 1899.
 Describes the fauna of a number of sections and the character and relations of the Devonian rocks of the region.
- 744 **Willis** (Bailey). The new Maryland Geological Survey.
 Science, new ser., vol. ix, pp. 252-255, 1899.
 Reviews vol. i of the Maryland Geological Survey.
- 745 — Work of the U. S. Geological Survey.
 Science, new ser., vol. x, pp. 203-213, 1899.
- 746 — and **Smith** (George Otis). Tacoma folio, Washington.
 U. S. Geol. Surv., Geol. Atlas of U. S., folio No. 54, 1899.
 Describes the general physiographic and geologic relations, geologic history, the occurrence and character of the Tertiary and Pleistocene deposits and eruptive rocks, and the occurrence of coal. Includes topographic and geologic maps and structural and columnar sections.
- 747 **Williston** (S. W.). Some additional characters of the Mosasaurs.
 Kan. Univ. Quart., vol. viii, pp. 39-41, pl. xii, 1899.
 Describes characters of *Platecarpus*.
- 748 — A new genus of fishes from the Niobrara Cretaceous.
 Kan. Univ. Quart., vol. viii, pp. 113-115, pl. xxvi, 1899.
- 749 — A new species of *Sagenodus* from the Kansas Coal Measures.
 Kan. Univ. Quart., vol. viii, pp. 175-181, pls. xxviii, xxxv-xxxvii, 1899.
 Gives a list of the species of this genus and describes *Sagenodus copeanus* n. sp.
- 750 — Notes on the coraco-scapula of *Eryops* Cope.
 Kan. Univ. Quart., vol. viii, pp. 185-186, pls. xxvii-xxx, 1899.
 Describes material from the Red beds of Indian Territory.
- 751 — [Review of "West Virginia Geological Survey, vol. i."]
 Jour. of Geol., vol. vii, pp. 426-427, 1899.
- 752 — Prof. Benjamin F. Mudge.
 Am. Geol., vol. xxiii, pp. 339-345, pl. xii, 1899.
 Gives a sketch of his life and list of his publications.

- 753 **Williston** (S. W.) The Red beds of Kansas.
 Science, new ser., vol. ix, p. 221 ($\frac{1}{2}$ p.), 1899.
 Discusses the Permian age of these beds.
- 754 **Willmott** (A. B.), **Coleman** (A. P.) and. Michipicoton iron range.
 See Coleman (A. P.) and Willmott (A. B.), No. 112.
- 755 **Wilson** (Herbert M.). Water resources of Puerto Rico.
 U. S. Geol. Surv., Water-Supply Paper No. 32, 48 pp., 17 pls., 10 figs.,
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24	152	212	399	512	726
47	159	275	417	604	727
73	165	276	445	639	799
88	166	334	451	683	
130	169	343	452	691	

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- Albertite-like asphalt, Taff, No. 617.

Iowa.

- Artesian wells of Belle Plaine, Mosnat, No. 492.
 Burlington artesian well, Fultz, No. 211.
 Dubuque lead and zinc mines, Bain, No. 23.
 Geology of Carroll County, Bain, No. 21.
 Geology of Humboldt County, Macbride, No. 450.

Economic geology—Continued.*Iowa*—Continued.

- Geology of Muscatine County, Udden, No. 642.
 Geology of Scott County, Norton, No. 501.
 Geology of Story County, Beyer, No. 49.

Kansas.

- Deep well at Madison, Bushong, No. 77.
 Onyx deposits of Barren County, Gorby, No. 227.
 Structure of Iola gas field, Orton, No. 505.

Louisiana.

- General geology, Harris and Veatch, No. 283.
 Louisiana clay samples, Ries, No. 546.
 The five islands, Veatch, No. 674.

Massachusetts.

- Building and road stones of Massachusetts, No. 731.
 Geology of eastern Berkshire County, Emerson, No. 176.
 Geology of Narragansett Basin, Shaler, Woodworth, and Foerste, No. 582.

Mexico.

- El Real del Monte, Ordoñez and Rangel, No. 503.
 Gold resources of Mexico, Comely, No. 114.

Michigan.

- Coal in Michigan, Holmes, No. 330.
 Crystal Falls iron-bearing district, Clements and Smyth, No. 105.
 Michigan mineral waters, Lane, No. 419.
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Minnesota.

- Geology of Akeley Lake plate, Grant, No. 241.
 Geology of Mountain Iron plate, Winchell, No. 762.
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 Geology of Virginia plate, Winchell, No. 763.
 Rainy Lake gold region, Winchell and Grant, No. 780.

Missouri.

- Reconnaissance from Springfield into Arkansas, Schmitz, No. 569.

Montana.

- Fort Benton folio, Weed, No. 701.
 Little Belt Mountains folio, Weed, No. 702.

Nebraska.

- Geology of Nebraska, Darton, No. 139.
 Wells in Nebraska, Barbour, No. 29.

Nevada.

- Nevada sulphur deposits, Fulton, No. 210.

New Jersey.

- Artesian wells in New Jersey, Woolman, No. 794.
 Water supply from wells, Vermeule, No. 677.

New York.

- Brine springs and salt wells, Luther, No. 449.
 Fibrous talc in St. Lawrence County, Nevius, No. 496.
 Petroleum and natural gas in New York, Orton, No. 506.
 Slate belt of New York and Vermont, Dale, No. 134.
 Titaniferous iron ores of Adirondacks, Kemp, No. 370.

North Carolina.

- Corundum mining, Ropes, No. 554.

Economic geology—Continued.*North Dakota.*

- Coal in North Dakota, Babeock, No. 18.

Ohio.

- Jackson County coal mines, Roy, No. 555.
 Rock waters of Ohio, Orton, No. 504.

Oregon.

- Coal of Newport mine, Day, No. 154.
 Coos Bay coal field, Diller, No. 157.

Panama.

- Gold deposits of Panama, Hershey, No. 302.

Pennsylvania.

- Clays of Pennsylvania, Hopkins, No. 334.
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Porto Rico.

- Mineral resources, Domenech, No. 162.
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Tennessee.

- Standingstone folio, Campbell, No. 80.
 Tennessee phosphate fields, Hayes, No. 295.

Utah.

- Geology of Tintic mining district, Tower and Smith, No. 632.
 Old Telegraph mine, Lavagnino, No. 422.

Vermont.

- Slate belt of New York and Vermont, Dale, No. 134.

Virginia.

- Geology of Richmond Basin, Shaler and Woodworth, No. 581.

Washington.

- Tacoma folio, Willis and Smith, No. 746.

West Virginia.

- Petroleum and natural gas, White, No. 722.

Wisconsin.

- Building and ornamental stones, Buckley, No. 73.

Wyoming.

- Oil fields of Crook and Uinta counties, Knight, No. 390.

Economic products described.

- Asphalt, Day, No. 154.
 Asphalt, Taff, No. 616.
 Asphaltum, Cooper, Nos. 115, 116.
 Asphaltum, Lakes, No. 409.
 Artesian water, Fultz, No. 211.
 Artesian well, Bushong, No. 77.
 Artesian wells, McCallie, No. 451.
 Artesian wells, Matthew and Kain, No. 473.
 Artesian wells, Mosnat, No. 492.
 Artesian wells, Vermeule, No. 677.
 Artesian wells, Woolman, No. 794.
 Building stone, Beyer, No. 49.
 Building stone, Buckley, No. 73.
 Building stone, Norton, No. 501.
 Building stone, Siebenthal, No. 585.
 Building stones, Whittle, No. 731.
 Clay, Bain, No. 21.
 Clay, Beyer, No. 49.
 Clay, Hopkins, No. 334.
 Clay, Ladd, Nos. 399, 400.
 Clay, Norton, No. 501.
 Clay, Ries, No. 546.
 Coal, Ashley, No. 17.
 Coal, Babeock, No. 18.
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Economic geology—Continued.*Economic products described—Continued.*

- Coal, Beyer, No. 49.
- Coal, Campbell, No. 80.
- Coal, Dawson, No. 148.
- Coal, Day, No. 154.
- Coal, Diller, No. 157.
- Coal, Eldridge, No. 170.
- Coal, Eldridge and Muldrow, No. 172.
- Coal, Gresley, No. 261.
- Coal, Hills, No. 319.
- Coal, Holmes, No. 330.
- Coal, Lakes, No. 408.
- Coal, Mendenhall, Nos. 475, 477.
- Coal, Norton, No. 501.
- Coal, Roy, No. 555.
- Coal, Shaler and Woodworth, No. 581.
- Coal, Shaler, Woodworth, and Foerste, No. 582.
- Coal, Taff, No. 616.
- Coal, Weed, No. 701.
- Coal, Willis and Smith, No. 746.
- Copper, Coleman, No. 111.
- Copper, Lindgren, No. 437.
- Copper, Peters and Brooks, No. 524.
- Copper, Schrader, No. 570.
- Corundum, Blue, Nos. 54, 55.
- Corundum, Gibson, No. 216.
- Corundum, Hunt, No. 34.
- Corundum, Miller, Nos. 486, 487, 488.
- Corundum, Ropes, No. 554.
- Feldspar, Hopkins, Nos. 335, 337.
- Gold, Barlow, No. 32.
- Gold, Barnard, No. 35.
- Gold, Bow, No. 57.
- Gold, Brock, No. 67.
- Gold, Brook, No. 68.
- Gold, Brooks, No. 69.
- Gold, Chalmers, No. 88.
- Gold, Comely, No. 114.
- Gold, Eldridge, No. 170.
- Gold, Eldridge and Muldrow, No. 172.
- Gold, Faribault, No. 182.
- Gold, Fowler, No. 194.
- Gold, Heilprin, No. 299.
- Gold, Hershey, Nos. 301, 304, 306.
- Gold, Heydon, No. 307.
- Gold, Lavagnino, No. 422.
- Gold, Ludloff, No. 447.
- Gold, McCallie, No. 452.
- Gold, McInnes, No. 456.
- Gold, Maguire, Nos. 458, 459.
- Gold, Mendenhall, Nos. 475, 477.
- Gold, Nordenskjöld, No. 499.
- Gold, Peters and Brooks, No. 524.
- Gold, Purington, No. 538.
- Gold, Rickard, No. 548.
- Gold, Schrader, No. 570.
- Gold, Spurr, No. 599.
- Gold, Spurr and Post, No. 601.
- Gold, Stone, No. 615.
- Gold, Tower and Smith, No. 632.
- Gold, Weed, Nos. 701, 702.
- Gold, Winchell and Grant, No. 780.
- Gold, Woodman, No. 784.
- Grahamite, White, No. 723.
- Hübnerite, Blake, No. 52.
- Iron, Castleman, No. 83.

Economic geology—Continued.*Economic products described—Continued.*

- Iron, Clements and Smyth, No. 105.
 - Iron, Coleman and Willmot, No. 112.
 - Iron, Grant, No. 241.
 - Iron, titaniferous, Kemp, No. 370.
 - Iron, McInnes, No. 456.
 - Iron, Winchell, Nos. 762, 763.
 - Kaolin, Hopkins, Nos. 335, 336.
 - Lead, Bain, No. 23.
 - Lead, Kendall, No. 375.
 - Mica, Fuller, No. 197.
 - Mica, Holmes, No. 331.
 - Mineral waters, Lane, No. 419.
 - Natural gas, Lakes, No. 404.
 - Natural gas, Orton, No. 506.
 - Natural gas, White, No. 722.
 - Oil, Knight, No. 390.
 - Oil, Orton, No. 505.
 - Oil, Watts, No. 700.
 - Onyx, Gorby, No. 227.
 - Petroleum, Cooper, Nos. 115, 116.
 - Petroleum, Fairbanks, No. 179.
 - Petroleum, Orton, No. 506.
 - Petroleum, White, No. 722.
 - Phosphate, Hayes, No. 295.
 - Pyrrhotite, Nicol, No. 498.
 - Quicksilver, Colquhoun, No. 113.
 - Salt, Luther, No. 449.
 - Salt, Veatch, No. 674.
 - Sapphire, Weed, No. 702.
 - Silver, Barlow, No. 32.
 - Silver, Brock, No. 67.
 - Silver, Fowler, No. 194.
 - Silver, Grant, No. 244.
 - Silver, Lavagnino, No. 422.
 - Silver, Kendall, No. 375.
 - Silver, native, Kunz, No. 398.
 - Silver, Purington, No. 538.
 - Silver, Rickard, No. 548.
 - Silver, Tower and Smith, No. 632.
 - Silver, Weed, Nos. 701, 702.
 - Sodium carbonate, Knapp, No. 386.
 - Sulphur, Fulton, No. 210.
 - Talc, Nevius, No. 496.
 - Titaniferous magnetite, Kemp, No. 372.
 - Water supply, Bain, No. 21.
 - Water supply, Barbour, No. 29.
 - Water supply, Darton, No. 139.
 - Water supply, Lane, No. 418.
 - Water supply, Leverett, Nos. 431, 432, 433.
 - Water supply, Orton, No. 504.
 - Water supply, Wilson, No. 755.
 - Wolframite, Blake, No. 53.
 - Zinc, Bain, No. 23.
 - Zinc, Schmitz, No. 569.
- Florida.**
- New Pliocene Polygyra, Johnson, No. 361.
- Geologic formations described.**
- Absarokite group, Hague, No. 268.
 - Acadian, Clarke and Schuchert, No. 101.
 - Admiralty till, Willis and Smith, No. 746.
 - Ajibik quartzite, Van Hise, No. 669.
 - Altamont moraine, Todd, No. 624.
 - Animikie, Grant, Nos. 234, 238, 240, 242, 247.
 - Animikie, McInnes, No. 456.
 - Animikie, Winchell, Nos. 760, 763, 764, 765, 766.

Geologic formations described—Continued.

- Animosa, Norton, No. 501.
 Apishapa formation, Hills, No. 319.
 Aquidneck shales, Shaler, Woodworth, and Foerste, No. 582.
 Arago formation, Diller, No. 157.
 Arkaree formation, Darton, No. 139.
 Ashton schists, Shaler, Woodworth, and Foerste, No. 582.
 Atchison shale, Keyes, No. 378.
 Atchison shale, Prosser, No. 535.
 Atlantosaurus beds, Marsh, No. 463.
 Attleboro sandstone, Shaler, Woodworth, and Foerste, No. 582.
 Avalon terrane, Walcott, No. 681.
 Ballard, Hill, No. 313.
 Barbican, Hill, No. 313.
 Barker formation, Weed, Nos. 701, 702.
 Barker porphyry, Weed, Nos. 701, 702.
 Barrington clays, Fuller, No. 195.
 Bassimanan lake granite, Winchell, No. 760.
 Becraft limestone, Clarke and Schuchert, No. 101.
 Bed-rock series, Turner and Ransome, No. 638.
 Beekmantown limestone, Clarke and Schuchert, No. 101.
 Belt formation, Weed, No. 702.
 Benton formation, Darton, No. 139.
 Bethany limestone, Keyes, No. 378.
 Berkshire schist, Dale, No. 134.
 Beulah clays, Ward, No. 690.
 Black Patch grit, Dale, No. 134.
 Black River limestone, Clarke and Schuchert, No. 101.
 Blackstone series, Shaler, Woodworth, and Foerste, No. 582.
 Bloomington moraine, Leverett, No. 431.
 Bluebird aplite, Weed, No. 704.
 Blue Hills shale, Logan, No. 439.
 Blue Mountain series, Hill, No. 313.
 Boggy shale, Taff, No. 616.
 Bogue Island formation, Hill, No. 313.
 Bohemia conglomerate, Hubbard, No. 343.
 Bonair conglomerate lentil, Campbell, No. 80.
 Bone Lake crystalline schists, Clements and Smyth, No. 105.
 Bowden formation, Hill, No. 313.
 Brito formation, Hayes, No. 296.
 Brule clay, Darton, No. 139.
 Brunswick beds, Kummel, No. 396.
 Buchanan gravels, Beyer, No. 49.
 Buff Bay beds, Hill, No. 313.
 Butte granite, Weed, No. 704.
 Cabotian, Grant, No. 234.
 Cabotian, Winchell, No. 769.
 Cabotian lavas, Winchell, No. 758.
 Cache Creek formation, Dawson, No. 150.
 Calaveras formation, Turner and Ransome, No. 639.
 Cambrie, Clarke and Schuchert, No. 101.
 Cambridge formation, Hill, No. 313.
 Camden chert, Safford and Schuchert, No. 559.
 Canadian, Clarke and Schuchert, No. 101.
 Cantwell conglomerate, Eldridge and Muldrow, No. 172.
 Cape John sandstones, Ami, No. 9.
 Carlile shale, Hills, No. 319.

Geologic formations described—Continued.

- Cascade formation, Weed, Nos. 701, 702.
 Castle granite, Weed, No. 702.
 Catadupa beds, Hill, No. 313.
 Catskill sandstone, Clarke and Schuchert, No. 101.
 Cayugan, Clarke and Schuchert, No. 101.
 Cedar Valley limestone, Udden, No. 642.
 Cedar Valley stage, Norton, No. 501.
 Cerro Gordo moraine, Leverett, No. 431.
 Chadron formation, Darton, No. 139.
 Champaign moraine, Leverett, No. 431.
 Champlainic, Clarke and Schuchert, No. 101.
 Chapelton beds, Hill, No. 313.
 Chase formation, Prosser, No. 535.
 Chattanooga shale, Campbell, No. 80.
 Chautauquan, Clarke and Schuchert, No. 101.
 Chazy limestone, Clarke and Schuchert, No. 101.
 Chemung, Luther, No. 449.
 Chemung beds, Clarke and Schuchert, No. 101.
 Cherokee shales, Orton, No. 505.
 Cheshire quartzite, Emerson, No. 176.
 Chesterfield group, Shaler and Woodworth, No. 581.
 Cheyenne sandstone, Prosser, No. 536.
 Chuar terrane, Walcott, No. 681.
 Cincinnati, Clarke and Schuchert, No. 101.
 Clear Creek limestone, Safford and Schuchert, No. 559.
 Clinton, Gilbert, No. 217.
 Clinton beds, Clarke and Schuchert, No. 101.
 Clinton group, Luther, No. 449.
 Coaledo formation, Diller, No. 157.
 Coal Measures, Beede, No. 45.
 Coal Measures, White, No. 719.
 Coastal series, Hill, No. 313.
 Coasters Harbor Island arkose, Shaler, Woodworth, and Foerste, No. 582.
 Cobre formation, Hill, No. 313.
 Coeyaman limestone, Clarke and Schuchert, No. 101.
 Coldwater shales, Lane, No. 418.
 Coles Brook limestone, Emerson, No. 176.
 Colorado formation, Weed, No. 701.
 Conanicut arkose, Shaler, Woodworth, and Foerste, No. 582.
 Conception slate, Walcott, No. 681.
 Copper Mountain greenstone, Schrader, No. 570.
 Cottonwood limestone, Keyes, No. 378.
 Courtland quartzite, Hall, No. 272.
 Couthiching, Grant, No. 247.
 Couthiching, McInnes, No. 456.
 Couthiching, Winchell and Grant, No. 780.
 Cranston beds, Shaler, Woodworth, and Foerste, No. 582.
 Cumberland quartzite, Shaler, Woodworth, and Foerste, No. 582.
 Dakota, Bain, No. 21.
 Dakota formation, Cross, No. 128.
 Dakota formation, Weed, No. 701.
 Dakota sandstone, Darton, No. 139.
 Dakota sandstone, Hills, No. 319.
 Dakota sandstone, Ward, No. 690.
 Davenport beds, Norton, No. 501.
 Des Moines, Bain, No. 21.

Geologic formations described—Continued.

- Des Moines, Macbride, No. 450.
 Des Moines, Udden, No. 642.
 Des Moines stage, Beyer, No. 49.
 Devonian, Clarke and Schuchert, No. 101.
 Dielasma beds, Norton, No. 501.
 Dighton conglomerate group, Shaler, Woodworth, and Foerste, No. 582.
 Dolores formation, Cross, No. 128.
 Dundee limestone, Lane, No. 418.
 Eagle formation, Weed, No. 701.
 East Lee limestone, Emerson, No. 176.
 Eastern sandstone, Hubbard, No. 343.
 Ellis formation, Weed, Nos. 701, 702.
 Empire formation, Diller, No. 157.
 Empire shales, Walcott, No. 681.
 Erian, Clarke and Schuchert, No. 101.
 Esopus grit, Clarke and Schuchert, No. 101.
 Etcheminian terrane, Matthew, No. 469.
 Eureka limestone, Tower and Smith, No. 632.
 Falmouth formation, Hill, No. 313.
 Favette breccia, Udden, No. 642.
 Flathead formation, Hague, No. 268.
 Fond du Lac sandstone, Winchell, No. 769.
 Forbes limestone, Keyes, No. 378.
 Fort Benton group, Logan, No. 439.
 Fort Hays limestone, Logan, No. 439.
 Franciscan series, Anderson, No. 16.
 Frankenfield, Hill, No. 313.
 Gale sand, Willis and Smith, No. 746.
 Gallatin limestone, Hague, No. 268.
 Gary moraine, Todd, No. 624.
 Genesee shale, Clarke and Schuchert, No. 101.
 Genesee slate, Luther, No. 449.
 Georgia slates, Clarke and Schuchert, No. 101.
 Georgian, Clarke and Schuchert, No. 101.
 Gering formation, Darton, No. 139.
 Godiva limestone, Tower and Smith, No. 632.
 Goose Pond limestone, Emerson, No. 176.
 Gower stage, Norton, No. 501.
 Grand Canyon series, Walcott, No. 681.
 Grand Gulf, Harris and Veatch, No. 283.
 Grand Portage graywacke, Winchell, No. 766.
 Graneros shale, Hills, No. 319.
 Grenville series, Barlow, No. 32.
 Greyson shale, Walcott, No. 681.
 Groveland formation, Clements and Smyth, No. 105.
 Groveland formation, Van Hise, No. 669.
 Guertie sand, Taff, No. 616.
 Guelph dolomite, Clarke and Schuchert, No. 101.
 Gunnison formation, Cross, No. 128.
 Hamilton beds, Clarke and Schuchert, No. 101.
 Hamilton group, Grabau, No. 230.
 Hamilton group, Luther, No. 449.
 Hartshorne sandstone, Taff, No. 616.
 Hay Creek coal formation, Ward, No. 690.
 Helderbergian, Clarke and Schuchert, No. 101.
 Helena limestone, Walcott, No. 681.
 Hemlock formation, Clements, No. 104.
 Hemlock formation, Clements and Smyth, No. 105.
 Highwood syenite, Weed, No. 701.
 Hill River moraine, Todd, No. 629.
 Hinckley sandstone, Winchell, No. 757.

Geologic formations described—Continued.

- Hinsdale gneiss and limestone, Emerson, No. 176.
 Hoosac schist, Emerson, No. 176.
 Hop Brook limestone, Emerson, No. 176.
 Hudson shale, Dale, No. 134.
 Hudson River group, Luther, No. 449.
 Humburg series, Tower and Smith, No. 632.
 Huronian, Barlow, No. 32.
 Huronian (Lower) series, Clements and Smyth, No. 105.
 Huronian series, Van Hise, No. 669.
 Illinoian drift, Calvin, No. 78.
 Illinoian drift, Leverett, No. 431.
 Illinoian till, Udden, No. 642.
 Independence shale, Norton, No. 501.
 Inwood limestone, Eckel, No. 168.
 Iola limestone, Keyes, No. 378.
 Iowan drift, Calvin, No. 78.
 Iowan drift, Leverett, No. 431.
 Ishpeming formation, Van Hise, No. 669.
 Itasca moraine, Todd, No. 629.
 Ithaca beds, Clarke and Schuchert, No. 101.
 Jackson, Harris and Veatch, No. 283.
 Jackson series, Lane, No. 418.
 Jefferson limestone, Hague, No. 268.
 Jerusalem, Hill, No. 313.
 Kansan drift, Bain, Nos. 21, 22.
 Kansan drift, Beyer, No. 49.
 Kansan drift, Calvin, No. 78.
 Kansan drift, Macbride, No. 450.
 Kansan till, Norton, No. 501.
 Kansan till, Udden, No. 642.
 Kearsarge conglomerate, Hubbard, No. 343.
 Keewatin, Grant, Nos. 239, 241, 247.
 Keewatin, McInnes, No. 456.
 Keewatin, Winchell, Nos. 760, 764, 767.
 Keewatin, Upper and Lower, Winchell, No. 756.
 Keewatin, Winchell and Grant, No. 780.
 Kenai series, Eldridge and Muldrow, No. 172.
 Kendal Green slate, Hobbs, No. 320.
 Keweenaw series, Lane, No. 417.
 Keweenaw series, Walcott, No. 681.
 Keweenawan, Grant, Nos. 234, 238, 240, 241, 242.
 Keweenawan, Winchell, Nos. 757, 766.
 Kinderhook limestone, Macbride, No. 450.
 Kingston beds, Clarke and Schuchert, No. 101.
 Kingston formation, Hill, No. 313.
 Kingstown series, Shaler, Woodworth, and Foerste, No. 582.
 Klutena series, Schrader, No. 570.
 Kona dolomite, Van Hise, No. 669.
 Ladentown trap, Kummel, No. 395.
 Lafayette, Harris, and Veatch, No. 283.
 Lake Bonneville beds, Tower and Smith, No. 633.
 Lake Ketihi moraine, Todd, No. 629.
 La Plata formation, Cross, No. 128.
 Laramie formation, Hills, No. 319.
 Laramie formation, Weed, No. 702.
 Laurentian, Barlow, No. 32.
 Laurentian, McInnes, No. 456.
 Laurentian, Winchell and Grant, No. 780.
 Lawrence shale, Keyes, No. 378.
 Le Claire beds, Norton, No. 501.

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Lee formation, Campbell, No. 80.
 Lee gneiss, Emerson, No. 176.
 Lignitic, Harris and Veatch, No. 283.
 Lincoln slate, Hobbs, No. 320.
 Little Compton shales, Shaler, Woodworth, and Foerste, No. 582.
 Livingston formation, Weed, No. 702.
 Lockatong group, KümmeI, No. 396.
 Lockport limestone, Clarke and Schuchert, No. 101.
 Loco diorite, Weed, No. 702.
 Loess, Bain, No. 21.
 Loess, Beyer, No. 49.
 Loess, Hall and Sardeson, No. 274.
 Loess, Norton, No. 501.
 Loess, Shaler, No. 577.
 Loess, Todd, No. 624.
 Loess, Udden, No. 642.
 Loess formation, Sardeson, No. 566.
 Loess formation, Shimeck, No. 583.
 Logie Green, Hill, No. 313.
 Lorraine beds, Clarke and Schuchert, No. 131.
 Lower Claiborne, Harris and Veatch, No. 283.
 Lower Helderberg, Girty, No. 222.
 Lower Magnesian limestone, Buckley, No. 73.
 Lower quartzite, Eckel, No. 168.
 Lowville limestone, Clarke and Schuchert, No. 101.
 McAlester shale, Taff, No. 616.
 McElmo formation, Cross, No. 128.
 Machuca formation, Hayes, No. 296.
 Madison limestone, Hague, No. 268.
 Madison limestone, Weed, Nos. 701, 702.
 Manchioneal formation, Hill, No. 313.
 Mancos shale, Cross, No. 128.
 Manhattan schist, Eckel, No. 168.
 Manitou, Grant, No. 234.
 Manitou series, Winchell, Nos. 760, 766.
 Manlius limestone, Clarke and Schuchert, No. 101.
 Mansfield formation, Clements, No. 104.
 Mansfield formation, Clements and Smyth, No. 105.
 Marcellus shale, Clarke and Schuchert, No. 101.
 Marion formation, Prosser, No. 535.
 Marseilles moraine, Leverett, No. 431.
 Marsh shales, Walcott, No. 681.
 Marshall series, Lane, No. 418.
 Marquette series, Van Hise, No. 669.
 Matanuska series, Mendenhall, No. 475.
 May Pen beds, Hill, No. 313.
 Medina, Gilbert, No. 217.
 Medina sandstone, Clarke and Schuchert, No. 101.
 Medina sandstone, Luther, No. 449.
 Mesnard quartzite, Van Hise, No. 669.
 Michiganamie formation, Van Hise, No. 669.
 Michigan series, Lane, No. 418.
 Midland sands, Willis and Smith, No. 746.
 Midway, Harris and Veatch, No. 283.
 Millers River conglomerate, Shaler, Woodworth, and Foerste, No. 582.
 Minho beds, Hill, No. 313.
 Mississippian series, Beyer, No. 49.
 Mohawkian, Clarke and Schuchert, No. 101.

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Momable slate, Walcott, No. 681.
 Monarch formation, Weed, Nos. 701, 702.
 Moneague formation, Hill, No. 313.
 Monroe, Lane, No. 418.
 Montana formation, Hague, No. 268.
 Montana formation, Weed, No. 701.
 Montego formation, Hill, No. 313.
 Montpelier beds, Hill, No. 313.
 Naparima marls, Harrison and Jukes-Browne, No. 284.
 Naples beds, Clarke and Schuchert, No. 101.
 Nasina series, Peters and Brooks, No. 524.
 Natick conglomerate, Shaler, Woodworth, and Foerste, No. 582.
 Negaunee formation, Van Hise, No. 669.
 Neihart porphyry, Weed, No. 702.
 Neihart quartzite, Weed, No. 702.
 Neihart quartzite and sandstone, Walcott, No. 681.
 Newark system, KümmeI, Nos. 395, 396.
 New Glasgow conglomerate, Ami, No. 9.
 Newland limestone, Walcott, No. 681.
 Newman limestone, Campbell, No. 80.
 Newport Neck shales, Shaler, Woodworth, and Foerste, No. 582.
 New Scotland beds, Clarke and Schuchert, No. 101.
 Niagara, Gilbert, No. 217.
 Niagara formation, Buckley, No. 73.
 Niagara group, Luther, No. 449.
 Niagaran, Clarke and Schuchert, No. 101.
 Nilkola formation, Peters and Brooks, No. 524.
 Niobrara formation, Darton, No. 139.
 Niobrara formation, Hills, No. 319.
 Niobrara group, Logan, No. 439.
 Normandy limestone, Campbell, No. 80.
 Nussbaum formation, Hills, No. 319.
 Oak Creek beds, Ward, No. 690.
 Oceanic series, Hill, No. 313.
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Genera and species described—Continued.

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Genera and species described—Continued.

- Anatina (Cercomya) punctata n. sp., Stanton, No. 603.
- Ancilla (Olivula) staminea Con., Harris, No. 281.
- Ancyrocrinus Hall, Grabau, No. 229.
bulbosus Hall, Grabau, No. 229.
- Andromeda delicatula Lx., Hollick, No. 328.
eolignitica n. sp., Hollick, No. 328.
- Anisotrypa sp., Girty, No. 223.
- Annularia sphenophylloides (Zenk.) Guth.,
var. intermedia Lx., White, No. 719.
stellata (Schloth.) Wood, White, Nos. 719,
720.
var. angustifolia Lx. ?, White, No. 720.
- Anogmius polymicrodus Stewart, Stewart, No. 611.
- Anomocare stenotides Matt., Matthew, No. 468.
- Aparchites (?) robustus n. sp., Matthew, No. 468.
- Aphlebia cf. filiciformis (Gutb.) Sterzel,
White, No. 720.
germani Zeill., White, No. 720.
membranacea (Lx.), White, No. 720.
spinosa (Lx.), White, No. 720.
subgoldenbergii n. sp., White, No. 720.
sp. White, No. 720.
- Apocynophyllum sapindifolium n. sp., Hollick, No. 328.
- Aporrhais gracilis Ald., Harris, No. 281.
- Arachnophyllum diffluens Milne-Edwards
and Haime sp., Lambe, No. 414.
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- Aralia notata Lx., Knowlton, No. 392.
serrulata n. sp., Knowlton, No. 392.
whitneyi Lx., Knowlton, No. 392.
wrightii n. sp., Knowlton, No. 392.
- Araucarioxylon hoppertonæ Knowlton n. sp.,
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- Araucarites cuneatus Ward n. sp., Fontaine,
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wyomingensis n. sp., Fontaine, No. 188.
- Archimedes sp., Girty, No. 223.
- Arctostaphylos elliptica n. sp., Knowlton,
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- Arionellus levis n. sp., Walcott, No. 682.
sp. undet., Walcott, No. 682.
- Artocarpus dubia n. sp., Hollick, No. 328.
lessigiana (Lx.) Kn., Hollick, No. 328.
pungens Lx., Hollick, No. 328.
quercoides n. sp., Knowlton, No. 392.
- Arystidictya n. gen., Hall and Clarke, Nos. 275,
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- Aspidella terranovica Billings, Walcott, No. 681.
- Asplenium dicksonianum Heer?, Fontaine,
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Genera and species described—Continued.

- Asplenium magnum n. sp., Knowlton, No. 392.
remotidens n. sp., Knowlton, No. 392.
- Astarte meeki n. sp., Stanton, No. 603.
smithvillensis Har., Harris, No. 280.
- Asterophyllites equisetiformis (Schloth.)
Brongn., White, Nos. 719, 720.
longifolius (Stb.) Brongn., White, No. 720.
- Astroecia conica n. sp., Logan, No. 438.
- Astrodapsis tumidus Rémond, Merriam, No. 480.
whitneyi Rémond, Merriam, No. 480.
- Astyris subfraxa n. sp., Harris, No. 281.
- Athrotaxopsis tenuicaulis Fontaine, Fontaine, No. 188.
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incrassata Hall (?), Girty, No. 223.
lamellosa Léveillé, Girty, No. 223.
lamellosa (Léveillé), Weller, No. 711.
spiriferoides (Eaton), Grabau, No. 229.
vitata var. triplicata n. var., Girty, No. 223.
(Cleiothyris?) sp., Weller, No. 711.
- Atrypa Dalman, Grabau, No. 229.
missouriensis Miller, Girty, No. 223.
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- Atys robustoides Ald., Harris, No. 281.
- Aulopora Goldfuss, Grabau, No. 229.
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- Autodetus Lindström, Grabau, No. 229.
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- Avellana bullata Mort., Harris, No. 280.
- Avicula (Oxytoma) wyomingensis n. sp.,
Stanton, No. 603.
- Aviculopecten McCoy, Grabau, No. 229.
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aciculum (Hall), Grabau, No. 229.
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- Baculites anceps, Harris, No. 280.
- Baieropsis adiantifolia Fontaine, Fontaine,
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- Bairdia McCoy, Grabau, No. 229.
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- Barbatia cuculoides var., Harris, No. 280.
- Bathyriscus Meek?, Walcott, No. 682.
- Bellerophon Montfort, Grabau, No. 229.
- Bellerophon (sensu stricto), Girty, No. 222.
leda Hall, Grabau, No. 229.
patulus Hall, Grabau, No. 229.
- Bellinurus grandævus Jones & Woodward, Jones
and Woodward, No. 366.
- Beloceras Hyatt, Clarke, No. 96.
lynx n. sp., Clarke, No. 96.
(?) napelesense n. sp., Clarke, No. 96.

Paleontology—Continued.

Genera and species described—Continued.

- Beltina n. gen., Walcott, No. 681.
 danai n. sp., Walcott, No. 681.
 Betula iddingsi n. sp., Knowlton, No. 392.
 Beyrichia McCoy, Grabau, No. 229.
 hamiltonensis Jones, Grabau, No. 229.
 (?) primæva n. sp., Matthew, No. 468.
 tricollina Ulrich, Grabau, No. 229.
 Billingsella coloradoensis Shumard, Walcott, No. 682.
 Bison bison (Linneus), Lucas, No. 444.
 alleni Marsh, Lucas, No. 444.
 antiquus Leidy, Lucas, No. 444.
 crassicornis Richardson, Lucas, No. 444.
 ferox Marsh, Lucas, No. 444.
 latifrons (Harlan), Lucas, No. 444.
 occidentalis Lucas, Lucas, Nos. 444, 446.
 Blarina simplicidens Cope, Cope, No. 118.
 Botryllopora Nicholson, Grabau, No. 229.
 socialis Nicholson, Grabau, No. 229.
 Botrydietya n. gen., Hall and Clarke, Nos. 275, 276.
 ramosa (sp.), Hall and Clarke, Nos. 275, 276.
 Brittsia n. gen., White, No. 720.
 problematica n. sp., White, No. 720.
 Bucania ? sp., Weller, No. 711.
 Bucanopsis, Girty, No. 222.
 Buccinanops ellipticum Whitf., Harris, Nos. 280, 281.
 Bullia buccinoides Merriam, Merriam, No. 481.
 Bulliopsis choctavensis Ald., Harris, No. 281.
 Bunomeryx Wortman, Scott, No. 576.
 Cadulus abruptus Ald. and M., Harris, No. 281.
 Calamites Suckow, White, No. 720.
 cannæformis Schloth., White, No. 719.
 cistii Brongn., White, No. 720.
 ramosis Artis, White, No. 720.
 Calamodendron approximatum (Schloth.) Brongn., White, No. 719.
 Calamostachys ovalis Lx. ?, White, No. 720.
 Calapeceia Billings, Lambe, No. 413.
 canadensis Billings, Lambe, No. 413.
 Calathospongia n. gen., Hall and Clarke, Nos. 275, 277.
 amphorina n. sp., Hall and Clarke, Nos. 275, 277.
 carceralis n. sp., Hall and Clarke, Nos. 275, 277.
 carlin, n. sp., Hall and Clarke, Nos. 275, 277.
 (?) magnifica, n. sp., Hall and Clarke, Nos. 275, 277.
 redfieldi Hall (sp.), Hall and Clarke, Nos. 275, 277.
 (?) sacculus Hall (sp.), Hall and Clarke, Nos. 275, 277.
 tiffanyi n. sp., Hall and Clarke, Nos. 275, 277.
 Callipteridium inæquale Lx., White, Nos. 719, 720.
 mansfieldi Lx., White, No. 719.
 membranaceum Lx., White, No. 720.
 sullivantii (Lx.) Weiss, White, Nos. 719, 720.
 Calyptraea aperta Sol., Harris, No. 281.
 Calyptraphorus trinodiferus Con., Harris, No. 280.

Paleontology—Continued.

Genera and species described—Continued.

- Camarophoria ringens Swallow, Girty, No. 223.
 Camarotoechia Hall and Clarke, Grabau, No. 229.
 camarifera Winchell (?), Girty, No. 223.
 congregata (Conrad), Grabau, No. 229.
 dotis Hall, Grabau, No. 229.
 herrickana n. sp., Girty, No. 223.
 horsfordi Hall, Grabau, No. 229.
 metallica White, Girty, No. 223.
 sappho Hall, Grabau, No. 229.
 sappho Hall (?), Girty, No. 223.
 sp., Girty, No. 223.
 Camelomeryx Scott, Scott, No. 576.
 Campophyllum sp., Girty, No. 222.
 Camptonetes burlingtonensis Gabb, Harris, No. 280.
 bellistriatus Meek, Stanton, No. 603.
 var. distans n. var., Stanton, No. 603.
 pertenuistriatus Hall and Whitfield, Stanton, No. 603.
 platessiformis White, Stanton, No. 603.
 Cancellaria graciloides Ald., Harris, No. 281.
 var. bella n. var., Harris, No. 281.
 lanceolata Ald., Harris, No. 281.
 maricana, Harris, No. 281.
 quercollis var. greggi, Harris, Nos. 280, 281.
 sylværupis Har., Harris, No. 281.
 tortiplica Con., Harris, No. 281.
 Canis priscolatrans Cope, Cope, No. 118.
 Cannapora Hall, Lambe, No. 413.
 jubeiformis Hall, Lambe, No. 413.
 Capulus expansus Whitf., Harris, No. 281.
 sp., Weller, No. 711.
 Carbonia rankiniana, Dawson, No. 152.
 Cardiocarbon (Samaropsis) branneri Fairch. and D. W., White, No. 720.
 Cardiola Broderip, Grabau, No. 229.
 retrostriata von Buch, Grabau, No. 229.
 Cardiopsis (?) erectus n. sp., Weller, No. 711.
 radiata Meek and Worthen, Weller, No. 711.
 Cardium alabamense, Harris, No. 280.
 tuomeyi Ald., Harris, No. 280.
 Caricaeus lævicornis Cope, Cope, No. 118.
 sp. Cope, No. 118.
 Caricella podagrina Dall., Harris, No. 281.
 Carpites pedunculatus n. sp., Knowlton, No. 392.
 Carpolithus barrensis Ward n. sp., Fontaine, No. 188.
 fasciculatus Fontaine, No. 188.
 fœnarius Ward, n. sp., Fontaine, No. 188.
 montium-nigrorum Ward, n. sp., Fontaine, No. 188.
 virginiensis Fontaine, Fontaine, No. 188.
 Cassidaria brevidentata Ald. var., Harris, Nos. 280, 281.
 dubia Ald., Harris, No. 281.
 Castanea pulchella n. sp., Knowlton, No. 392.
 Castor fibre Linn, Cope, No. 118.
 Celastrophyllum pulchrum n. sp., Ward, No. 690.

Paleontology—Continued.

Genera and species described—Continued.

- Celastrus culveri n. sp., Knowlton, No. 392.
 ellipticus n. sp., Knowlton, No. 392.
 inaequalis n. sp., Knowlton, No. 392.
 taurinensis Ward (?), Hollick, No. 328.
 veatchi n. sp., Hollick, No. 328.
- Centronella Billings, Grabau, No. 229.
 impressa Hall, Grabau, No. 229.
- Cephalotaxopsis magnifolia Fontaine, Fontaine, No. 188.
- Ceratodictya n. gen., Hall and Clarke, Nos. 275, 276.
 annulata Hall (sp.), Hall and Clarke, Nos. 275, 276.
 carpenteriana n. sp., Hall and Clarke, Nos. 275, 276.
 centeta n. sp., Hall and Clarke, Nos. 275, 276.
 cincta Hall (sp.), Hall and Clarke, Nos. 275, 276.
 zonata n. sp., Hall and Clarke, Nos. 275, 276.
- Ceratopora n. gen., Grabau, Nos. 229, 231.
 dichotoma n. sp., Grabau, Nos. 229, 231.
 distorta n. sp., Grabau, No. 231.
 jacksoni n. sp., Grabau, Nos. 229, 231.
- Cericrocinus monticulatus n. sp., Beede, No. 44.
- Cerithiopsis conica Ald., Harris, No. 281.
 fluviatilis Ald., Harris, No. 281.
 terebropsis n. sp., Harris, No. 281.
- Cerithium delicatulum Ald., Harris, No. 281.
 tombigbeense Ald., Harris, No. 281.
- Chonetes Fischer de Waldheim, Grabau, No. 229.
 coronatus (Conrad), Grabau, No. 229.
 illinoisensis Worthen, Weller, No. 711.
 lepidus Hall, Grabau, No. 229.
 loganensis Hall and Whitfield, Girty, No. 223.
 mesolobius Norwood and Pratten, Girty, No. 222.
 mucronatus Hall, Grabau, No. 229.
 ornatus Shumard, Girty, No. 223.
 scitulus Hall, Grabau, No. 229.
 setigerus (Hall), Grabau, No. 229.
 vicinus (Castelnau), Grabau, No. 229.
- Chonophyllum canadense Billings sp., Lambe, No. 414.
 nymphale Billings, sp., Lambe, No. 414.
- Chrysodomus engonata Heilp., Harris, No. 281.
 striata Ald., Harris, No. 281.
- Cinnamomum buchi Heer, Hollick, No. 328.
 scheuchzeri Heer (?), Hollick, No. 328.
 sezannense Wat., Hollick, No. 328.
 spectabile Heer, Knowlton, No. 392.
- Cissites ingens Lx., Ward, No. 590.
 salisburyae folius Lx., Ward, No. 590.
- Cissus haguei n. sp., Knowlton, No. 392.
- Cladocora jamaicensis n. sp., Vaughan, No. 672.
- Cladodus claypolei, Hay, No. 286.
 corrigir, Hay, No. 286.
- Cladophleris parva Fontaine ?, Fontaine, No. 188.
 wyomingensis n. sp., Fontaine, No. 188.

Paleontology—Continued.

Genera and species described—Continued.

- Cladopora Hall, Lambe, No. 413.
 crassa Rominger, Lambe, No. 413.
 cryptodens Billings (sp.), Lambe, No. 413.
 fischeri Billings (sp.), Lambe, No. 413.
 frondosa Nicholson (sp.), Lambe, No. 413.
 labiosa Billings, Lambe, No. 413.
 lichenoides Rominger, Lambe, No. 413.
 multipora Hall, Lambe, No. 413.
 roemeri Billings (sp.), Lambe, No. 413.
 turgida Rominger, Lambe, No. 413.
 sp., Girty, No. 223.
- Clathrosporgia Hall, Hall and Clarke, Nos. 275, 276.
 abacus Hall, Hall and Clarke, Nos. 275, 277.
 caprodonta n. sp., Hall and Clarke, Nos. 275, 277.
 (?) desmia n. sp., Hall and Clarke, Nos. 275, 276.
 fenestrata Hall (sp.), Hall and Clarke, Nos. 275, 276.
 (?) hamiltonensis Hall (sp.), Hall and Clarke, Nos. 275, 276.
 (?) irregularis Hall (sp.), Hall and Clarke, Nos. 275, 276.
 (?) tomaculum Hall (sp.), Hall and Clarke, Nos. 275, 276.
 vascellum Hall (sp.), Hall and Clarke, Nos. 275, 276.
- Clavilithes kennedyanus Har., Harris, No. 281.
- Clemmys insculpta Le Conte, Cope, No. 118.
 percrassus Cope, Cope, No. 118.
- Cleodictya Hall, Hall and Clarke, Nos. 275, 277.
 claypolei n. sp., Hall and Clarke, Nos. 275, 277.
 gloriosa Hall, Hall and Clarke, Nos. 275, 277.
 mohri Hall, Hall and Clarke, Nos. 275, 277.
- Clepsydrosporgia matutina n. sp., Hall and Clarke, Nos. 275, 276.
- Cliothyris crassicardinalis White, Girty, No. 223.
 var. nana n. var., Girty, No. 223.
 roissyi Walcott (non Léveillé), Girty, No. 223.
- Clisiohyllum billingsi Dawson sp., Lambe, No. 414.
 teres, n. sp., Girty, No. 223.
- Clypeaster? brewerianus Rémond, Merriam, No. 480.
- Cœnites Eichwald, Lambe, No. 413.
 juniperina Eichwald, Lambe, No. 413.
 lunata Nicholson and Hinde, Lambe, No. 413.
 selwynii Nicholson (sp.), Lambe, No. 413.
- Coleolus Hall, Grabau, No. 229.
 (?) gracilis Hall, Grabau, No. 229.
 tenuicinctum, Grabau, No. 229.
- Columnaria rugosa Billings sp., Lambe, No. 414.
- Conocardium Bronn, Grabau, No. 229.
 crassifrons (Conrad), Grabau, No. 229.
 eboraceum Hall, Grabau, No. 229.

Paleontology—Continued.

Genera and species described—Continued.

Conocardium—Continued.

normale Hall, Grabau, No. 229.

pulchellum White and Whitfield (?), Girty, No. 223.

Conomitra tracyi n. sp., Harris, No. 281.

Conostichus broadheadi Lx., White, No. 720.

prolifer Lx., White, No. 720.

Conularia Miller, Grabau, No. 229.

undulata Conrad, Grabau, No. 229.

Corbula alabamensis var., Harris, No. 280.

sp., Logan, No. 440.

Cordaites Unger, White, No. 720.

communis Lx., White, No. 720.

diversifolius Lx.?, White, No. 720.

Cordianthus dichotomus Lx., White, No. 720.

ovatus Lx., White, No. 720.

Cornulina armigera, Harris, No. 281.

Cornulites Schlothheim, Grabau, No. 229.

hamiltonia n. sp., Grabau, No. 229.

Cornus newberryi Hollick, Knowlton, No. 392.

wrightii n. sp., Knowlton, No. 392.

studerii Heer (?), Hollick, No. 328.

Corylus macquarryi (Forbes) Heer, Knowlton, No. 392.

Crania Retzius, Grabau, No. 229.

crenistriata Hall, Grabau, No. 229.

lævis Keyes, Girty, No. 223.

Craniella Oehlert, Grabau, No. 229.

hamiltonia Hall, Grabau, No. 229.

Craspedophyllum Dybowski, Grabau, No. 229.

archiaci Billings, Grabau, No. 229.

subcæspitosum (Nicholson), Grabau, No. 229.

Crassatella vadosa Mort., Harris, No. 280.

sp., Harris, No. 280.

Credneria? pachyphylla n. sp., Knowlton, No. 392.

Crenipecten lævis n. sp., Weller, No. 711.

winchelli (Meek)?, Weller, No. 711.

Crepicephalus Owen, Walcott, No. 682.

texanus Shumard sp., Walcott, No. 682.

Cryphæus Green, Grabau, No. 229.

boothi Green, Grabau, No. 229.

var. calliteles Green, Grabau, No. 229.

Cryptocarya eolignitica n. sp., Hollick, No. 328.

Cryptodictya Hall, Hall and Clarke, Nos. 275, 276.

alleni Hall, Hall and Clarke, Nos. 275, 276.

Cryptonella Hall, Grabau, No. 229.

planirostris Hall, Grabau, No. 229.

rectirostris Hall, Grabau, No. 229.

Crytozoon? occidentale Dawson, Walcott, No. 681.

Chuarua circularis n. gen., et sp., Walcott, No. 681.

Ctenobolbina Ulrich, Grabau, No. 229.

minima Ulrich, Grabau, No. 229.

Cucullæa haguei Meek, Stanton, No. 603.

Cyathophyllum Goldfuss, Grabau, No. 229.

anticostiense Billings, Lambe, No. 414.

articulatum Wahlenberg, Lambe, No. 414.

cæspitosum Goldfuss (?), Girty, No. 223.

conatum Hall, Grabau, No. 229.

dawsoni n. sp., Lambe, No. 414.

spenceri n. sp., Lambe, No. 414.

Paleontology—Continued.

Genera and species described—Continued.

Cycadeoidea Buckland, Ward, No. 690.

aspera n. sp., Ward, Nos. 690, 691.

colei n. sp., Ward, Nos. 690, 691.

colossalis n. sp., Ward, Nos. 690, 691.

cicatricula n. sp., Ward, Nos. 690, 691.

daocensis (McBride) Ward emend, Ward, Nos. 690, 691.

excelsa n. sp., Ward, Nos. 690, 691.

formosa n. sp., Ward, Nos. 690, 691.

furecata n. sp., Ward, Nos. 690, 691.

ingens n. sp., Ward, Nos. 690, 691.

ingens Ward, Wieland, Nos. 733, 734.

insolita n. sp., Ward, Nos. 690, 691.

jenneyana Ward, Ward, Nos. 690, 691.

marshiana n. sp., Ward, Nos. 690, 691.

mcbridei n. sp., Ward, Nos. 690, 691.

minnekahtensis n. sp., Ward, Nos. 690, 691.

nana n. sp., Ward, Nos. 690, 691.

occidentalis n. sp., Ward, Nos. 690, 691.

paynei n. sp., Ward, Nos. 690, 691.

pulcherrima n. sp., Ward, Nos. 690, 691.

stillwelli n. sp., Ward, Nos. 690, 691.

turrita n. sp., Ward, Nos. 690, 691.

wellsi n. sp., Ward, Nos. 690, 691.

wielandi n. sp., Ward, No. 690.

Cycadeosperum rotundatum Fontaine, Fontaine, No. 188.

Cyclocladia Lindley and Hutton, White, No. 720.

brittsii n. sp., White, No. 720.

Cyclostrema aldrichi n. sp., Harris, No. 281.

Cylichna aldrichi Lang., Harris, No. 281.

sylværupus n. sp., Harris, No. 281.

Cyllene bellana Har., Harris, No. 281.

Cyperacites giganteus n. sp., Knowlton, No. 392.

(?) sp., Knowlton, No. 392.

Cyperites sp., Hollick, No. 328.

Cyphaspis Burmeister, Grabau, No. 229.

ornata Hall, Grabau, No. 229.

Cyprea smithii Ald., Harris, No. 281.

Cypriocardella Hall, Grabau, No. 229.

bellistriata (Conrad), Grabau, No. 229.

Cypriocardia? haguei n. sp., Stanton, No. 603.

Cypriocardia Hall?, Grabau, No. 229.

indentata (Conrad), Grabau, No. 229.

Cyprina? cinnabarensis n. sp., Stanton, No. 603.

(?) iddingsi n. sp., Stanton, No. 603.

Cyrtina Davidson, Grabau, No. 229.

hamiltonensis Hall, Grabau, No. 229.

var. recta Hall, Grabau, No. 229.

Cyrtoclymenia neapolitana Clarke, Clarke, No. 96.

Cystiphyllum Lonsdale, Grabau, No. 229.

aggregatum Billings, Lambe, No. 414.

americanum E. and H., Grabau, No. 229.

confollis Hall, Grabau, No. 229.

niagarensis Hall sp., Lambe, No. 414.

varians Hall, Grabau, No. 229.

vesiculosum Goldfuss sp., Lambe, No. 414.

Cytheria (?) newcombei, Merriam, No. 481.

vancouverensis, Merriam, No. 481.

Czekanowskia nervosa Heer, Fontaine, No. 188.

Dalmanella subcarinata Hall, Girty, No. 222.

Paleontology—Continued.

Genera and species described—Continued.

- Dalmanites pleuroptyx (Green), Girty, No. 222.
- Daphnogene kamii (?) Heer, Hollick, No. 328.
- Deinodon Leidy, Hay, No. 289.
- Dendracis cantabridgiensis n. sp., Vaughan, No. 672.
- Dentalium microstria Heilp., Harris, No. 281.
multannulatum Ald., Harris, No. 281.
thalloides Con., Harris, No. 281.
- Derbya keokuk Hall (?), Girty, No. 223.
- Devallia ? montana n. sp., Knowlton, No. 392.
- Dicellomus Hall, Walcott, No. 682.
nanus M. and H. sp., Walcott, No. 682.
- Dicranophyllum ? sp., White, No. 720.
- Dictyopteris carrii (Lx.), White, No. 719.
gilkersonensis D. W., White, No. 719.
- Dictyospongia n. gen., Hall and Clarke, Nos. 275, 276.
almondensis n. sp., Hall and Clarke, Nos. 275, 276.
(?) bacteria n. sp., Hall and Clarke, Nos. 275, 276.
charia n. sp., Hall and Clarke, Nos. 275, 276.
cylindrica Whitfield (sp.), Hall and Clarke, Nos. 275, 277.
eumorphia n. sp., Hall and Clarke, Nos. 275, 276.
haplea n. sp., Hall and Clarke, Nos. 275, 276.
lophura n. sp., Hall and Clarke, Nos. 275, 276.
(?) marcellia Clarke (sp.), Hall and Clarke, Nos. 275, 276.
morini Barrois (sp.), Hall and Clarke, Nos. 275, 276.
sceptrum Hall (sp.), Hall and Clarke, Nos. 275, 276.
siræa n. sp., Hall and Clarke, Nos. 275, 276.
(?) stylina n. sp., Hall and Clarke, Nos. 275, 277.
(Mastodictya) osculada n. sp., Hall and Clarke, Nos. 275, 277.
- Dielasma King, Grabau, No. 229.
utah Hall and Whitfield, Girty, No. 223.
sp. ?, Weller, No. 711.
(Craena) romingeri Hall, Grabau, No. 229.
- Diospyros haguei n. sp., Knowlton, No. 392.
lamarensis n. sp., Knowlton, No. 392.
- Diphyphyllum caespitosum Hall sp., Lambe, No. 414.
multicaule Hall sp., Lambe, No. 414.
simcoense Billings sp., Lambe, No. 414.
- Diplodocus longus, Osborn, No. 509.
- Diplodus politus Newberry, Eastman, No. 167.
priscus n. sp., Eastman, No. 167.
striatus n. sp., Eastman, No. 167.
- Diploria Milne-Edwards and Haime, Vaughan, No. 672.
conferticostata n. sp., Vaughan, No. 672.
var. columnaria n. var., Vaughan, No. 672.

Paleontology—Continued.

Genera and species described—Continued.

- Dipterus calvini Eastman, Udden, No. 644.
contraversus, Hay, No. 286.
- Discohelix verrilli n. sp. (by Aldrich), Harris, No. 281.
- Distyonema Hall, Grabau, No. 229.
- Dombeyopsis platanoides Lx., Knowlton, No. 392.
- Dorycrinus Roemer, Grabau, No. 229.
- Dryophyllum longipetillatum n. sp., Knowlton, No. 392.
- Dryopteris weedii n. sp., Knowlton, No. 392.
xantholithense n. sp., Knowlton, No. 392.
- Dryptosaurus kenabekides, Hay, No. 289.
- Duncanella fanningana (Safford), Girty, No. 222.
rudis Girty, Girty, No. 222.
- Eccyliomphalus Portloch, Grabau, No. 229.
laxus (Hall), Grabau, No. 229.
- Echinarachinus gibbsi Rémond, Merriam, No. 480.
excentricus Eschscholtz, Merriam, No. 480.
(?) ectenodictya Hall, Hall and Clarke, Nos. 275, 277.
implexa Hall, Hall and Clarke, Nos. 275, 277.
- Edmondia burlingtonensis M. and W., Weller, No. 711.
missouriensis n. sp., Weller, No. 711.
? reflexa Meek, Girty, No. 222.
subtruncata Meek?, Girty, No. 222.
- Elæodendron polymorpha Ward, Knowlton, No. 392.
- Elymella Hall, Grabau, No. 229.
missouriensis Miller and Gurley, Weller, No. 711.
nuculoides Hall, Grabau, No. 229.
- Empo lisbonensis n. sp., Stewart, No. 610.
- Endothyra baileyi var. parva n. var., Girty, No. 223.
- Entomis Jones, Grabau, No. 229.
rhomboidea Jones, Grabau, No. 229.
- Equisetum canaliculatum n. sp., Knowlton, No. 392.
deciduum n. sp., Knowlton, No. 392.
haguei n. sp., Knowlton, No. 392.
lesquereuxii Kn. Knowlton, No. 392.
virginicum Fontaine, Fontaine, No. 188.
- Equus Linn, Cope, No. 118.
fraternus Leidy, Cope, No. 118.
phlegon, Hay, No. 289.
- Eremopteris bolibata n. sp., White, No. 720.
missouriensis Lx., White, No. 720.
- Eridopora (?) sp., Girty, No. 223.
- Erisocrinus megalobrachus n. sp., Beede, No. 44.
- Erithizon ? dorsatum Linn, Cope, No. 118.
- Eryops Cope, Williston, No. 750.
- Eulima exilis Gabb, Harris, No. 281.
(Subularia) cainei n. sp., Harris, No. 281.
- Eulimella tenua Gabb, Harris, No. 281.
- Eumetria verneuilliana Hall, Girty, No. 223.
- Euomphalus n. sp., Girty, No. 222.

Paleontology—Continued.

Genera and species described—Continued.

- Eupachyrinus tuberculatus Meek and Worthen, Girty, No. 222.
 sp., Girty, No. 222.
 Euphemus, Girty, No. 222.
 (?) sp., Weller, No. 711.
 Euthria dubia Ald., Harris, No. 281.
 Excipulites callipterides (Schimp.) Kidst., White, No. 720.
 Exilia pergracilis Harris, No. 281.
 Exogyra costata Say, Harris, No. 280.
 Fagus undulata n. sp., Knowlton, No. 392.
 Fasciolaris sp., Logan, No. 438.
 Favosites Lamarck, Grabau, No. 229.
 Favosites Lamarck, Lambe, No. 413.
 alpenensis, Lambe, No. 413.
 argus Hall, Grabau, No. 229.
 aspera d'Orbigny, Lambe, No. 413.
 basaltica Goldfuss (sp.), Lambe, No. 413.
 billingsii Rominger, Lambe, No. 413.
 canadensis Billings (sp.), Lambe, No. 413.
 cervicornis Milne-Edwards and Haime, Lambe, No. 413.
 clausa Rominger, Lambe, No. 413.
 conicus Hall, Girty, No. 222.
 digitata Rominger, Lambe, No. 413.
 gaspensis n. sp., Lambe, No. 413.
 gothlandica Lamarck, Lambe, No. 413.
 hamiltoniae Hall, Grabau, No. 229.
 hemispherica Milne-Edwards and Haime, Lambe, No. 413.
 hisingeri Milne-Edwards and Haime, Lambe, No. 413.
 niagarensis Hall, Lambe, No. 413.
 nitella Winchell, Lambe, No. 413.
 radiceiformis Rominger, Lambe, No. 413.
 turbinata Billings, Lambe, No. 413.
 sp., Girty, No. 223.
 Feistmantelia oblonga Ward, n. sp., Fontaine, No. 188.
 Felis eyra Desm., Cope, No. 118.
 Fenestella Lonsdale, Girty, No. 223.
 Fenestella Miller, Grabau, No. 229.
 emaciata Hall, Grabau, No. 229.
 planiramosa Hall, Grabau, No. 229.
 Ficophyllum serratum Fontaine, Fontaine, No. 188.
 Ficus artocarpoides ? Lx., Hollick, No. 328.
 deformata n. sp., Knowlton, No. 392.
 densifolia n. sp., Knowlton, No. 392.
 haguei n. sp., Knowlton, No. 392.
 harrisiana n. sp., Hollick, No. 328.
 planicostata Lx., Hollick, No. 328.
 ungeri Lx., Knowlton, No. 392.
 sp., Knowlton, No. 392.
 Fissurella alabama n. sp., Harris, No. 281.
 Fistulicella Simpson, Grabau, No. 229.
 plana Hall, Grabau, No. 229.
 Fistuliporina Simpson, Grabau, No. 229.
 digitata (Hall), Grabau, No. 229.
 micropora (Hall), Grabau, No. 229.
 minuta (Rominger), Grabau, No. 229.
 scrobiculata (Hall), Grabau, No. 229.
 segregata (Hall), Grabau, No. 229.

Paleontology—Continued.

Genera and species described—Continued.

- Fletcheria Milne-Edwards and Haime, Lambe, No. 413.
 incerta Billings (sp.), Lambe, No. 413.
 Fraxinus denticulata Heer, Knowlton, No. 392.
 johnstrupi (?) Heer, Hollick, No. 328.
 wrightii n. sp., Knowlton, No. 392.
 Fulguroficus triserialis Whitf., Harris, No. 281.
 Fusoficula juvenis Whitf., Harris, Nos. 280, 281.
 Fusulina cylindrica, Smith, No. 592.
 Fusus bellanus Har., Harris, No. 281.
 harrisi Ald., Harris, No. 280.
 interstriatus Heilp., Harris, No. 281.
 ottonis Ald., Harris, No. 281.
 rugatus Ald., Harris, No. 281.
 subtenuus Heilp., Harris, No. 281.
 sp., Logan, No. 438.
 (Buccinofusus) harrisi Ald., Harris, No. 281.
 Geinitzia jenneyi n. sp., Fontaine, No. 188.
 Gennaeocrinus W. and S., Grabau, No. 229.
 eucharis (Hall), Grabau, No. 229.
 nyssa (Hall), Grabau, No. 229.
 Gephyroceras Hyatt, Clarke, No. 96.
 perlatum Hall (sp.), Clarke, No. 96.
 (?) (Probeloceras?) gunendewa n. sp., Clarke, No. 96.
 Glauconome Goldfuss, Grabau, No. 229.
 carinata Hall, Grabau, No. 229.
 Gleichenia zippei (Corda) Heer?, Fontaine, No. 188.
 Glossozamites fontaineants Ward n. sp., Fontaine, No. 188.
 Glyptostrobos brookensis (Fontaine) Ward, Fontaine, No. 188.
 Gomphoceras Sowerby, Grabau, No. 229.
 lunatum Hall, Grabau, No. 229.
 manes Hall, Grabau, No. 229.
 Gongylospongia n. gen., Hall and Clarke, No. 275, 276.
 complanatus Hall, Grabau, No. 229.
 marshi n. sp., Hall and Clarke, Nos. 275, 276.
 rynchostoma Clarke, Grabau, No. 229.
 sororium Clarke, Grabau, No. 229.
 Goniatites de Haan, Grabau, No. 229.
 (Gephyroceras) holzapfeli Clarke, Grabau, No. 229.
 (Mantioceras) intumescens Beyrich, Grabau, No. 229.
 (Probeloceras) lutheri Grabau, No. 229.
 (Tornoceras) bicostatus Hall, Grabau, No. 229.
 uniaangularis Conrad, Grabau, No. 229.
 Goniobasis (?) increbescens n. sp., Stanton, No. 603.
 pealei n. sp., Stanton, No. 603.
 Goniophora Phillips, Grabau, No. 229.
 modiomorphoides n. sp., Grabau, Nos. 229, 230.
 Gosselettia Barrios, Grabau, No. 229.
 retusa Hall, Grabau, No. 229.
 Grammatodon M. and H., Woods, No. 793.
 Grammysia de Verneuil, Grabau, No. 229.
 arcuata (Conrad), Grabau, No. 229.

Paleontology—Continued.

Genera and species described—Continued.

- Grewiopsis ? aldersoni n. sp., Knowlton, No. 392.
- Griphodictya n. gen., Hall and Clarke, Nos. 275, 277.
- eliphanes n. sp., Hall and Clarke, Nos. 275, 277.
- Gryphaea galceola var. nebrascensis Meek and Hayden, Stanton, No. 603.
- planoconvexa Whitfield, Stanton, No. 603.
- vesicularis Lam., Harris, No. 280.
- Grypodon, Hay, No. 286.
- Gulo liscus Linn, Cope, No. 118.
- Habrocrinus d'Orb., Grabau, No. 229.
- pentadactylus n. sp., Grabau, No. 229.
- Hadrianus schucherti n. sp., Hay, No. 287.
- Hadrophyllum, E. and H., Grabau, No. 229.
- woodi n. sp., Grabau, No. 229.
- Haguia n. gen., Walcott, No. 682.
- sphaerica n. sp., Walcott, No. 682.
- Hallodictya n. gen., Hall and Clarke, Nos. 275, 276.
- cottoniana n. sp., Hall and Clarke, Nos. 275, 276.
- sciensis n. sp., Hall and Clarke, Nos. 275, 276.
- Halysites Fischer, Lambe, No. 413.
- catenularia L., Lambe, No. 413.
- var. amplitubulata n. var., Lømbe, No. 413.
- var. gracilis Hall, Lambe, No. 413.
- var. nitida n. var., Lambe, No. 413.
- var. quebecensis n. var., Lambe, No. 413.
- var. simplex n. var., Lambe, No. 413.
- compacta Rominger, Lambe, No. 413.
- micropora Whitfield, Lambe, No. 413.
- Hederella Hall, Grabau, No. 229.
- canadensis (Nicholson), Grabau, No. 229.
- filiformis (Billings), Grabau, No. 229.
- Hellicodictya n. gen., Hall and Clarke, Nos. 275, 276.
- (?) concordia n. sp., Hall and Clarke, Nos. 275, 276.
- (?) scio n. sp., Hall and Clarke, Nos. 275, 276.
- trypania n. sp., Hall and Clarke, Nos. 275, 276.
- Heliolites Dana, Lambe, No. 413.
- inordinata Lonsdale (sp.), Lambe, No. 413.
- interincta L., Lambe, No. 413.
- subtubulata McCoy (sp.), Lambe, No. 413.
- Heliophyllum Hall, Grabau, No. 229.
- confluens Hall, Grabau, No. 229.
- halli, E. and H. Grabau, No. 229.
- Helminthoidichnites meeki n. sp., Walcott, No. 681.
- (?) neihartensis n. sp., Walcott, No. 681.
- (?) spiralis n. sp., Walcott, No. 681.
- Helodus wortheni, Hay, No. 286.
- Heteroceras sp., Harris, No. 280.
- Hicoria crescentia n. sp., Knowlton, No. 392.
- culveri n. sp., Knowlton, No. 392.
- Hindia sphaeroidalis Duncan, Girty, No. 222.

Paleontology—Continued.

Genera and species described—Continued.

- Hipponyx sylværupis n. sp., Harris, No. 281.
- Holasterella wrighti var. americana n. var., Girty, No. 223.
- Homalonotus Kœnig, Grabau, No. 229.
- dekayi (Green), Grabau, No. 229.
- Homomya gallatinensis n. sp., Stanton, No. 603.
- Hybodius copei, Hay, No. 286.
- Hydnoceras Conrad, Hall and Clarke, Nos. 275, 276.
- anthracis n. sp., Hall and Clarke, Nos. 275, 276.
- avoca n. sp., Hall and Clarke, Nos. 275, 276.
- barroisi nom. nov., Hall and Clarke, Nos. 275, 276.
- bathense n. sp., Hall and Clarke, Nos. 275, 276.
- botrodema n. sp., Hall and Clarke, Nos. 275, 276.
- eumeces n. sp., Hall and Clarke, Nos. 275, 276.
- eutheles n. sp., Hall and Clarke, Nos. 275, 276.
- gracile n. sp., Hall and Clarke, Nos. 275, 276.
- hyastrum n. sp., Hall and Clarke, Nos. 275, 276.
- jeumontense n. sp., Hall and Clarke, Nos. 275, 276.
- legatum, Hall and Clarke, Nos. 275, 276.
- lutheri n. sp., Hall and Clarke, Nos. 275, 276.
- multinodosum n. sp., Hall and Clarke, Nos. 275, 276.
- nodosum Hall (sp.), Hall and Clarke, Nos. 275, 276.
- phymatodes n. sp., Hall and Clarke, Nos. 275, 276.
- rhopalum n. sp., Hall and Clarke, Nos. 275, 276.
- tuberosum Conrad, Hall and Clarke, Nos. 275, 276.
- var. glossema n. var., Hall and Clarke, Nos. 275, 276.
- variabile n. sp., Hall and Clarke, Nos. 275, 276.
- Hydriodictya n. gen., Hall and Clarke, Nos. 275, 276.
- cylix n. sp., Hall and Clarke, Nos. 275, 276.
- nephelia n. sp., Hall and Clarke, Nos. 275, 276.
- patula Hall, Hall and Clarke, Nos. 275, 276.
- Hyalolithes primordialis Hall, Walcott, No. 682.
- Hyomeryx Marsh, Scott, No. 576.
- Hypertragulus Cope, Scott, No. 576.
- Hyphantæna Vanuxem (emendata), Hall and Clarke, Nos. 275, 276.
- chemungensis Vanuxem, Hall and Clarke, Nos. 275, 276.
- Hysterites cordaitis Gr. Ey., White, No. 720.
- Icanodus ? limitaris, Hay, No. 286.
- Ilex ? affinis (?) Lx., Hollick, No. 328.
- sp., Hollick, No. 328.

Paleontology—Continued.

Genera and species described—Continued.

- Inoceramus acuteplicatus* n. sp., Stanton, No. 603.
barabini Mort., Harris, No. 280.
Iphidea sculptilis Meek, Walcott, No. 682.
 sp. undet., Walcott, No. 682.
Isochilina Jones, Grabau, No. 229.
fabacea Jones, Grabau, No. 229.
Isopholis, Hay, No. 286.
Juglans crescentia n. sp., Knowlton, No. 392.
laurifolia n. sp., Knowlton, No. 392.
rugosa Lx., Hollick, No. 328.
schimperi Lx., Hollick, No. 328.
Kellia prima Ald., Harris, No. 280.
Labechua huronensis Billings sp., Lambe, No. 416.
Laelaps incrassatus, Hay, No. 289.
Lagomys palatinus Cope, Cope, No. 118.
Lapparia dumosa Con. var., Harris, No. 281.
Latirus tortilis var. *nanafalium* n. var., Harris, No. 281.
Laurinoxylon pulchrum n. sp., Knowlton, No. 392.
Laurus grandis Lx., Knowlton, No. 392.
montana n. sp., Knowlton, No. 392.
perdita n. sp., Knowlton, No. 392.
princeps Heer., Knowlton, No. 392.
primigenia Ung., Hollick, No. 328.
primigenia? Ung., Knowlton, No. 392.
pseudo-carolinensis Lx., Knowlton, No. 392.
Laxispira imbricalis, Harris, No. 280.
Lebedictya n. gen., Hall and Clarke, Nos. 275, 277.
crinita n. sp., Hall and Clarke, Nos. 275, 277.
Leda aldrichiana Har. var., Harris, No. 280.
corpulentoides Ald. var., Harris, No. 280.
Legumen planulatum Con., Harris, No. 280.
Leguminosites lamarensis n. sp., Knowlton, No. 392.
lesquereuxiana Kn., Knowlton, No. 392.
Leiopteria Hall, Grabau, No. 229.
conradi Hall, Grabau, No. 229.
rafinesquii Hall, Grabau, No. 229.
Leiorhynchus Hall, Grabau, No. 229.
dubium Hall, Grabau, No. 229.
limitare (Vanuxem), Grabau, No. 229.
multicostus Hall, Grabau, No. 229.
quadricostatum (Vanuxem), Grabau, No. 229.
Leiostoma (?) *ludoviciana* n. sp., Harris, No. 280.
Leperditia Ronault, Grabau, No. 229.
hudsonica Hall, Grabau, No. 229.
Lepidocystis vesicularis Lx., White, No. 719.
Lepidodendron Sternberg, White, No. 720.
brittsii Lx., White, No. 720.
choctavense n. sp., White, No. 719.
clypeatum Lx., White, No. 720.
lanceolatum Lx., White, No. 720.
modulatum Lx., White, No. 719.
rimosum var. *recortieatum* n. var., White, No. 720.
scutatum Lx., White, No. 720.

Paleontology—Continued.

Genera and species described—Continued.

- Lepidophloios* Sternberg, White, No. 720.
van ingeni n. sp., White, No. 720.
 (?) cf. *van ingeni*, White, No. 720.
Lepidophyllum brevifolium Lx., White, No. 719.
jenneyi n. sp., White, No. 720.
lanceolatum L. and H., White, No. 719.
 cf. *mansfieldi* Lx., White, No. 719.
missouriense n. sp., White, No. 720.
truncatum Lx., White, No. 719.
Lepidostrobos princeps Lx., White, No. 720.
Lepidoxylon anomalum Lx., White, No. 720.
Leptæna rhomboidalis Wilkens, Girty, Nos. 222, 223.
Leptecodon rectus n. gen. et sp., Williston, No. 748.
Leptichthys n. gen., Stewart, No. 612.
agilis n. sp., Stewart, No. 612.
Leptomeryx Leidy, Scott, No. 576.
Leptophyllia agassizi n. sp., Vaughan, No. 672.
Leptoreodon Wortman, Scott, No. 576.
Leptostrobos (?) *alatus* Ward n. sp., Fontaine, No. 188.
longifolius Fontaine, Fontaine, No. 188.
Leptotragulus Scott and Osborn, Scott, No. 576.
Lepus sylvaticus Bachm., Cope, No. 118.
Levibuccinum lineatum Con., Harris, No. 281.
Levifusus indentus n. sp., Harris, Nos. 280, 281.
pagoda Heilp., Harris, Nos. 280, 281.
supraplanus n. sp., Harris, Nos. 280, 281.
trabeatus Con., Harris, No. 281.
trabeatus Con. var.?, Harris, No. 280.
Lichenalia Hall, Grabau, No. 229.
stellata Hall, Grabau, No. 229.
Lichenaria typa W. and S., Sardeson, No. 567.
Lima pelagica Mort., Harris, No. 280.
Limnocyon riparius, Marsh, No. 464.
Linearia metastrata, Harris, No. 280.
Lingula Bruguière, Grabau, No. 229.
delia Hall, Grabau, No. 229.
mytiloides Sowerby?, Girty, No. 222.
spatulata Vanuxem, Grabau, No. 229.
 (Glossina) *leana* Hall, Grabau, No. 229.
Lingulella subgenus of *Obolus*, Walcott, No. 683.
Linopteris gilkinsonensis n. sp., White, No. 720.
Liorhynchus haguei n. sp., Girty, No. 223.
Liostracus parvus n. sp., Walcott, No. 682.
Liotia granulata Lea, Harris, No. 281.
Lithostrotion macounii n. sp., Lambe, No. 414.
 sp., Girty, No. 223.
Litsea cuneata n. sp., Knowlton, No. 392.
Loculipora Hall, Grabau, No. 229.
perforata Hall, Grabau, No. 229.
Lonsdaleia pictoense Billings sp., Lambe, No. 414.
Loxonema Phillips, Grabau, No. 229.
attenuatum Hall?, Girty, No. 222.
breviculum Hall, Grabau, No. 229.
 ? *coapta* Hall, Grabau, No. 229.
delicatum n. sp., Girty, No. 223.
delphicola Hall, Grabau, No. 229.
hamiltoniæ Hall, Grabau, No. 229.

Paleontology—Continued.

Genera and species described—Continued.

Loxonema—Continued.

(?) sp., Girty, No. 223.

sp., Weller, No. 711.

Lucina ozarkana Har., Harris, No. 280.

Lunulicardium Munster, Grabau, No. 229.

curtum Hall, Grabau, No. 229.

fragile Hall, Grabau, No. 229.

Lutra rhoadsii Cope, Cope, No. 118.

Lyellia Milne-Edwards and Haime, Lambe, No. 413.

affinis Billings, Lambe, No. 413.

americana Milne-Edwards and Haime, Lambe, No. 413.

decipiens Rominger, Lambe, No. 413.

exigua Billings (sp.), Lambe, No. 413.

superba Billings, Lambe, No. 413.

Lygodium kaulfusii Heer, Knowlton, No. 392.

Lynx calcaratus Cope, Cope, No. 118.

Lycopora Nich. and Eth. jun., Lambe, No. 413.

goldfussi Billings (sp.), Lambe, No. 413.

Lyrodictya Hall, Hall and Clarke, Nos. 275, 277.

(?) burlingtonensis Hall (sp.), Hall and Clarke, Nos. 275, 277.

romingeri Hall, Hall and Clarke, Nos. 275, 277.

Lysactinella Girty, Hall and Clarke, Nos. 275, 276.

Machærodus Kaupp, Cope, No. 118.

gracilis Cope, Cope, No. 118.

Macrodon Lycett, Grabau, No. 229.

Macrodon Lycett, Woods, No. 793.

hamiltonia Hall, Grabau, No. 229.

sp., Weller, No. 711.

Macron philadelphicus n. sp., Harris, No. 281.

Macra bistrata Har., Harris, No. 280.

Magnolia culveri n. sp. Knowlton, No. 392.

hilgardiana Lx., Hollick, No. 328.

lanceolata Lx., Hollick, No. 328.

microphylla n. sp., Knowlton, No. 392.

(?) pollardi n. sp., Knowlton, No. 392.

spectabilis n. sp., Knowlton, No. 392.

Malapoenna lamarensis n. sp., Knowlton, No. 392.

Mantioceras accelerans n. sp., Clarke, No. 96.

apprimatum n. sp., Clarke, No. 96.

contractum n. sp., Clarke, No. 96.

fasciculatum n. sp., Clarke, No. 96.

nodifer Clarke, Clarke, No. 96.

oxy n. sp., Clarke, No. 96.

pattersoni Hall (sp.), Clarke, No. 96.

var. styliophilum, n. var., Clarke, No. 96.

rhynchostoma n. sp., Clarke, No. 96.

simulator Hall (sp.), Clarke, No. 96.

sororium n. sp., Clarke, No. 96.

tardum n. sp., Clarke, No. 96.

vagans n. sp., Clarke, No. 96.

Mariopteris capitata n. sp., White, No. 719.

muricata (Schlotho) Zeill., White, No. 719.

cf. nervosa (Brongn.) Zeill., White, No. 720.

occidentalis n. sp., White, No. 719.

villosa n. var., White, No. 719.

sillimanni (Brongn.), White, No. 719.

Paleontology—Continued.

Genera and species described—Continued.

Mariopteris—Continued.

sphenopteroides (Lx.) Zeill., White, No. 720.

sp., White, No. 720.

n. sp., ? White, No. 720.

Martinia rostrata n. sp., Girty, No. 223.

Mastodon americanus Leidy, Cope, No. 118.

Mathilda leana Ald., Harris, No. 281.

Matonidium althausii (Dunker) Ward n. comb., Fontaine, No. 188.

Mazzalina plena Ald., Harris, No. 280.

var. plenus, Harris, No. 281.

Megalichthys, Hay, No. 286.

Megalonyx loxodon Cope, Cope, No. 118.

scalper Cope, Cope, No. 118.

tortulus Cope, Cope, No. 118.

wheatleyi Cope, Cope, No. 118.

Megambonia lata Hall, Girty, No. 222.

Melania sylværupis n. sp., Harris, No. 281.

trigemmata Con., Harris, No. 281.

Melanopsis anita Ald., Harris, No. 281.

planoidea Ald., Harris, No. 281.

Menophyllum (?) excavatum n. sp., Girty, No. 223.

Mephitis Linn., Cope, No. 118.

fossidens Cope, Cope, No. 118.

leptops Cope, Cope, No. 118.

obtusatus Cope, Cope, No. 118.

orthostichus Cope, Cope, No. 118.

Meristella Hall, Grabau, No. 229.

arcuata var. atoka n. var., Girty, No. 222.

barrisi Hall, Grabau, No. 229.

haskinsi Hall, Grabau, No. 229.

rostrata Hall, Grabau, No. 229.

Mesalia pumila var. alabamensis Whitf., Harris, No. 281.

Mesogaulus ballensis n. gen et sp., Riggs, No. 550.

Mesomorpha catadupensis n. sp., Vaughan, No. 672.

Matadoxides magnificus n. sp., Matthew, No. 470.

Metula sylværupis n. sp., Harris, No. 281.

Michelinia de Koninck, Lambe, No. 413.

clappii Milne-Edwards and Haime, Lambe, No. 413.

convexa d'Orbigny, Lambe, No. 413.

favosistoidea Billings em. (favosioidea), Lambe, No. 413.

placenta White, Girty, No. 223.

Mimacca van ingeni Matt., Matthew, No. 468.

Microtus dideltus Cope, Cope, No. 118.

diluvianus Cope, Cope, No. 118.

involutus Cope, Cope, No. 118.

speothen Cope, Cope, No. 118.

Mitra hatchetigbeensis Ald., Harris, No. 281.

pergracilis Con., Harris, No. 281.

Mitrella alabamensis Ald. and M., Harris, No. 281.

mississippiensis Ald., Harris, No. 281.

Modiella Hall, Grabau, No. 229.

Modiola alabamensis Ald., Harris, No. 280.

pygmaea (Conrad), Grabau, No. 229.

stubbis n. sp., Harris, No. 280.

sp., Logan, No. 440.

Paleontology—Continued.

Genera and species described—Continued.

- Modiomorpha Hall, Grabau, No. 229.
 alata (Conrad), Grabau, No. 229.
 concentrica (Conrad), Grabau, No. 229.
 northviewensis n. sp., Weller, No. 711.
 subalata (Conrad), Grabau, No. 229.
- Monilopora Nich. and Eth. jr., Grabau, No. 231.
 antiqua Whiteaves, Grabau, No. 231.
 beecheri n. sp., Grabau, No. 231.
 crassa (McCoy), Grabau, No. 231.
- Moniloporidæ n. fam., Grabau, No. 341.
- Monopteria ? subalata n. sp., Beede and Rogers, No. 46.
- Monotrypa Nicholson, Grabau, No. 229.
 ampletens n. sp., Grabau, No. 229.
 fructicosa (Hall), Grabau, No. 229.
 (?) furcata (Hall), Grabau, No. 229.
- Moorea Jones and Kirby, Grabau, No. 229.
 bicornuta Ulrich, Grabau, No. 229.
- Mourlonia northviewensis n. sp., Weller, No. 711.
- Multicolumnastræa n. gen., Vaughan, No. 672.
 cyathiformis (Duncan), Vaughan, No. 672.
- Murchisonia marcouiana Geinitz, Girty, No. 222.
- Muricidea imbricatula, Harris, No. 281.
- Musophyllum complicatum Lx., Knowlton, No. 392.
- Mustela diluviana Cope, Cope, No. 118.
- Myalina ? exasperata n. sp., Beede, No. 44.
- Myliobatis leidy, Hay, No. 286.
- Mylodon ? harlanii Owen, Cope, No. 118.
- Mylohyus Cope, Cope, No. 118.
 nasutus Leidy, Cope, No. 118.
 pennsylvanicus Leidy, Cope, No. 118.
 tetragonus Cope, Cope, No. 118.
- Myrica bolanderi ? Lx., Knowlton, No. 392.
 lamarensis n. sp., Knowlton, No. 392.
 wardii n. sp., Knowlton, No. 392.
- Nageiopsis angustifolia Fontaine?, Fontaine, No. 188.
 longifolia Fontaine, Fontaine, No. 188.
- Nassa cancellata Lea, Harris, No. 281.
 exilis Con., Harris, No. 280.
 newcombei Merriam, Merriam, No. 481.
- Natica alabamiensis, Harris, No. 280.
 aperta Whitf., Harris, Nos. 280, 281.
 eminula Har., Harris, No. 280.
 eminula Har. var., Harris, No. 281.
 magno-umbilicata Lea, Harris, No. 281.
 (Neverita) onusta Whitf., Harris, No. 281.
 (Lacunaria) alabamiensis Whitf., Harris, No. 281.
 erecta Whitf., Harris, No. 281.
 semilunata, Harris, No. 281.
 (Sigaticus) clarkeana Ald., Harris, No. 281.
- Naticopsis (?) sp., Girty, No. 223.
- Nautilus Breynius, Grabau, No. 229.
 magister Hall, Grabau, No. 229.
 (Centroceras) marcellensis (Vanuxem), Grabau, No. 229.
- Neithea quinquecostata ? (Sow.) Mort., Harris, No. 280.
- Neritina wyomingensis n. sp., Stanton, No. 603.

Paleontology—Continued.

Genera and species described—Continued.

- Neuropteris Brongniart, 1822, White, No. 720.
 caudata D. W., White, No. 719.
 dilatata (L. and H.) Lx., White, No. 720.
 griffithii Lx., White, No. 719.
 harrisi n. sp., White, No. 719.
 jenneyi D. W., White, No. 719.
 missouriensis Lx., White, Nos. 719, 720.
 var. nervosa n. var., White, No. 719.
 scheuchzeri Hoffm., White, Nos. 719, 720.
- Niso umbilicata Lea, Harris, No. 281.
- Nucleospira Hall, Grabau, No. 229.
 concinna Hall, Grabau, No. 229.
- Nucula Lamarck, Grabau, No. 229.
 corbuliformis Hall, Grabau, No. 229.
 pulchella n. sp., Beede and Rogers, No. 46.
- Nuculana-arata (Hall), Girty, No. 222.
- Nuculites Conrad, Grabau, No. 229.
 nyssa Hall, Grabau, No. 229.
 oblongatus Hall, Grabau, No. 229.
 tryqueter Conrad, Grabau, No. 229.
- Nyctopora Nicholson, Lambe, No. 413.
 billingsi Nicholson, Lambe, No. 413.
- Obolella gamagei n. sp., Hobbs, No. 320.
 loperi n. sp., Walcott, No. 683.
 mickwitzi n. sp., Walcott, No. 683.
 namouna n. sp., Walcott, No. 683.
 pandemia n. sp., Walcott, No. 683.
 rhea n. sp., Walcott, No. 683.
- Obolus Eichwald, Walcott, No. 683.
 anceps n. sp., Walcott, No. 683.
 (Lingulella) argutus n. sp., Walcott, No. 683.
 auga n. sp., Walcott, No. 683.
 bellus n. sp., Walcott, No. 683.
 bellulus n. sp., Walcott, No. 683.
 desideratus n. sp., Walcott, No. 683.
 dubius n. sp., Walcott, No. 683.
 elli n. sp., Walcott, No. 683.
 euglyphus n. sp., Walcott, No. 683.
 franklinensis n. sp., Walcott, No. 683.
 hayesi n. sp., Walcott, No. 683.
 helena n. sp., Walcott, No. 683.
 ino sp., Walcott, No. 683.
 lamborni var. minimus n. var., Walcott, No. 683.
 leos n. sp., Walcott, No. 683.
 lineolatus n. sp., Walcott, No. 683.
 mosia var. osceola n. var., Walcott, No. 683.
 nanno n. sp., Walcott, No. 683.
 oweni n. sp., Walcott, No. 683.
 phaon n. sp., Walcott, No. 683.
 pogonipensis n. sp., Walcott, No. 683.
 prindlei n. sp., Walcott, No. 683.
 punctatus n. sp., Walcott, No. 683.
 rogersi n. sp., Walcott, No. 683.
 rotundatus n. sp., Walcott, No. 683.
 similis n. sp., Walcott, No. 683.
 sinoe n. sp., Walcott, No. 683.
 tarpa n. sp., Walcott, No. 683.
 willisi n. sp., Walcott, No. 683.
 zetus n. sp., Walcott, No. 683.
 (Lingulepis) Hall, Walcott, No. 682.
 acuminatus var. meeki, Walcott, No. 682.

Paleontology—Continued.

Genera and species described—Continued.

- Odontoperis ? *bradleyi* Lx., White, No. 720.
wortheni Lx., White, No. 719.
Oligocarpia cf. gutbieri Goepp, White, No. 720.
missouriensis n. sp., White, No. 720.
Oligoporus ? minutus n. sp., Beede, No. 44.
Olivella mediavia, Harris, No. 281.
Omphalophloios cyclostigma (Lx.) D. W., White, No. 720.
Omphyma eriphyle Billings sp., Lambe, No. 414.
Onoclea minima n. sp., Knowlton, No. 392.
Oppelia ? sp. Stanton, No. 603.
Orbiculoidea d'Orbigny, Grabau, No. 229.
doria Hall, Grabau, No. 229.
lodiensis Vanuxem, Grabau, No. 229.
media Hall, Grabau, No. 229.
 (?) *Oromeryx* Marsh, Scott, No. 576.
Orthis ? remnicha Winchell, Walcott, No. 682.
 (?) *sandbergi* Winchell, Walcott, No. 682.
Orthoceras Breyanius, Grabau, No. 229.
aulax Hall, Grabau, No. 229.
chemungense Swallow, Weller, No. 711.
constrictum Vanuxem, Grabau, No. 229.
emaceratum Hall, Grabau, No. 229.
eriense Hall, Grabau, No. 229.
exile Hall, Grabau, No. 229.
nuntium Hall, Grabau, No. 229.
rude Hall, Girty, No. 222.
subulatum Hall, Grabau, No. 229.
telamon Hall, Grabau, No. 229.
Orthonota Conrad, Grabau, No. 229.
 (?) *parvula* Hall, Grabau, No. 229.
Orthostrophia strophomenoides Hall, Girty, No. 222.
Orthothetes Fischer de Waldheim, Grabau, No. 229.
arctostriatus Hall, Grabau, No. 229.
chemungensis (Conrad), Weller, No. 711.
inaequalis Hall, Girty, No. 223.
perversus Hall, Grabau, No. 229.
Oryctocephalus reynoldsi n. sp., Reed, No. 542.
Osmotherium Cope, Cope, No. 118.
spelæum Cope, Cope, No. 118.
Osmunda affinis Lx., Knowlton, No. 392.
Ostrea attenuata n. sp., Logan, No. 440.
beloiti n. sp., Logan, No. 438.
canonensis n. sp., Logan, No. 440.
congesta Conrad, Logan, No. 440.
crenula n. sp., Logan, 440.
crenulimarginata, Harris, No. 280.
exogyroidea n. sp., Logan, No. 440.
incurva n. sp., Logan, No. 440.
jewellensis n. sp., Logan, No. 440.
kansasensis n. sp., Logan, No. 440.
larva, Harris, No. 280.
lata n. sp., Logan, No. 440.
leeci n. sp., Logan, No. 440.
plumosa, Harris, No. 280.
pulaskensis, Harris, No. 280.
thirsæ, Harris, No. 280.
strigilecula White, Stanton, No. 603.
welleri n. sp., Logan, No. 440.
willistoni n. sp., Logan, No. 440.
Pachyphyllum sp., Girty, No. 223.

Paleontology—Continued.

Genera and species described—Continued.

- Pachyrhizodus minimus*, Stewart, No. 609.
Palæoneilo Hall, Grabau, No. 229.
constricta (Conrad), Grabau, No. 229.
constricta (Conrad)?, Weller, No. 711.
emarginata (Conrad), Grabau, No. 229.
fecunda Hall, Grabau, No. 229.
muta Hall, Grabau, No. 229.
tenuistriata Hall, Grabau, No. 229.
truncata Hall, Weller, No. 711.
Paleotrochis, Williams, No. 741.
Paleschara Hall, Grabau, No. 229.
amplectens Hall, Grabau, No. 229.
intercella Hall, Grabau, No. 229.
reticulata Hall, Grabau, No. 229.
Palæurus columbi Heer, Knowlton, No. 392.
minimus n. sp., Knowlton, No. 392.
zizyphoides ? Lx., Knowlton, No. 392.
Parabatrachus, Hay, No. 286.
Paracyclas Hall, Grabau, No. 229.
lirata (Conrad), Grabau, No. 229.
Parazyga Hall and Clarke, Grabau, No. 229.
hirsuta Hall, Grabau, No. 229.
Patella geometrica Merriam, Merriam, No. 481.
Patellostium, Girty, No. 222.
nodocostatum (Gurley), Girty, No. 222.
Pecopteris cf. arborescens (Schloth.) Brongn., White, No. 720.
borealis Brongn., Fontaine, No. 188.
clintoni Lx., White, No. 720.
dentata Brongn. (non Will.), White, No. 719.
geyleriana Nathorst, Fontaine, No. 188.
jenneyi n. sp., White, No. 720.
lesquereuxii D. W., White, No. 719.
oreopteridia (Schloth.) Stb., White, No. 719.
polymorpha Brongn., White, No. 719.
pseudovestita n. sp., White, No. 720.
richardsoni n. sp., White, No. 719.
squamosa Lx., White, No. 720.
unita Brongn., White, No. 719.
vestita Lx., White, No. 720.
 var. *minor* n. var., White, No. 719.
 (Asterotheca) *hemitelioides* Brongn. ?, White, No. 720.
 (Asterotheca) *squamosa* Lx., White, No. 719.
 (Dactylothea) *dentata* Brongn. (non Will.), White, No. 720.
Pelycictis lobulatus Cope, Cope, No. 118.
Pentacrinus asteriscus Meek and Hayden, Stanton, No. 603.
Pernopecten cooperensis (Shumard), Weller, No. 711.
Persea speciosa Heer, Hollick, No. 328.
Phacops Emmrich, Grabau, No. 229.
hudsonicus Hall, Girty, No. 222.
rana (Green), Grabau, No. 229.
Phaethonides Angelin, Grabau, No. 229.
gemmaeus Hall and Clarke, Grabau, No. 229.
Phanerotinus paradoxus Winchell, Weller, No. 711.
Philine alabamensis Ald., Harris, No. 281.

Paleontology—Continued.

Genera and species described—Continued.

- Phillipsastræa billingsi* Calvin, Lambe, No. 414.
verneuili Milne-Edwards and Haime, Lambe, No. 414.
Pholadella Hall, Grabau, No. 229.
radiata (Conrad), Grabau, No. 229.
Pholadomya inæquiplicata n. sp., Stanton, No. 603.
kingi Meek, Stanton, No. 603.
Pholas alatoideus, Harris, No. 280.
Pholidops Hall, Grabau, No. 229.
hamiltoniæ Hall, Grabau, No. 229.
linguloides Hall, Grabau, No. 229.
Phragmites falcata n. sp., Knowlton, No. 392.
? latissima n. sp., Knowlton, No. 392.
Phragmodictya Hall, Hall and Clarke, Nos. 275, 277.
catelliformis Whitfield (sp.), Hall and Clarke, Nos. 275, 277.
 (?) *crebristriata* Hall, Hall and Clarke, Nos. 275, 277.
 (?) *lineata* Hall, Hall and Clarke, Nos. 275, 277.
patelliformis Hall, Hall and Clarke, Nos. 275, 277.
Phyllites crassifolia n. sp., Knowlton, No. 392.
Phyllonotus morulus Har., Harris, No. 281.
Phynchostegium knowltoni, n. sp., Britton, No. 65.
Physospongia Hall, Hall and Clarke, Nos. 275, 277.
alternata Hall, Hall and Clarke, Nos. 275, 277.
colletti Hall, Hall and Clarke, Nos. 275, 277.
dawsoni Whitfield (sp.) Hall and Clarke, Nos. 275, 277.
multibursaria n. sp., Hall and Clarke, Nos. 275, 277.
Pinna peracuta Shumard, Girty, No. 222.
 sp., Harris, No. 280.
Pinus gracilistrobis n. sp., Knowlton, No. 392.
iddingsi n. sp., Knowlton, No. 392.
macrolepis n. sp., Knowlton, No. 392.
premurrayana n. sp., Knowlton, No. 392.
susquaensis Dawson, Fontaine, No. 188.
wardii n. sp., Knowlton, No. 392.
Pityoxylon aldersoni n. sp., Knowlton, No. 392.
amethystinum n. sp., Knowlton, No. 392.
Planolites corrugatus n. sp., Walcott, No. 681.
superbus n. sp., Walcott, No. 681.
Plasmopora Milne-Edwards and Haime 1849, Lambe, No. 413.
foliis Milne-Edwards and Haime, Lambe, No. 413.
petaliformis Lonsdale (sp.), Lambe, No. 413.
Plataninum haydeni Felix, Knowlton, No. 392.
Platanus cissoides Lesquereux ?, Ward, No. 690.
guillelmæ Goepf, Knowlton, No. 392.
montana n. sp., Knowlton, No. 392.
Platecarpus, Williston, No. 747.

Paleontology—Continued.

Genera and species described—Continued.

- Platyceras* Conrad, Girty, No. 223.
 Conrad, Grabau, No. 229.
bucculentum Hall, Grabau, No. 229.
carinatum Hall, Grabau, No. 229.
erectum Hall, Grabau, No. 229.
symmetricum, Grabau, No. 229.
thetis Hall, Grabau, No. 229.
primordialis Hall ?, Walcott, No. 682.
 (Orthonychia) *attenuatum* Hall, Grabau, No. 229.
Platycrinus Miller, Grabau, No. 229.
eriensis Hall, Grabau, No. 229.
symmetricus Wachsmuth and Springer, Girty, No. 223.
Platyostoma Conrad, Grabau, No. 229.
lineata Conrad, Grabau, No. 229.
 var. *emarginata* n. var., Grabau, No. 229.
minutum n. sp., Girty, No. 223.
Platyschisma missouriensis n. sp., Weller, No. 711.
Platyxytrodus striatus, Hay, No. 286.
Plethomytilus Hall, Grabau, No. 229.
oviformis (Conrad), Grabau, No. 229.
Plethospira ? n. sp., Girty, No. 222.
Pleurodictyum Goldfuss, Grabau, No. 229.
stylopora (Eaton), Grabau, No. 229.
Pleuromya subcompressa Meek, Stanton, No. 603.
Pleurophorus taffi n. sp., Girty, No. 222.
Pleurotoma cainei n. sp., Harris, No. 281.
capax Whitf., Harris, No. 281.
carlottæ, n. sp., Harris, No. 281.
denticulata Edw. var., Harris, No. 281.
exiloides Ald., Harris, No. 281.
georgei n. sp., Harris, No. 281.
huppertzi var., Harris, No. 280.
langdoni Heilp., Harris, No. 281.
mediavia Har. var., Harris, No. 281.
 var. *equiseta* n. var., Harris, No. 281.
moniliata Heilp., Harris, No. 281.
moorei Gabb, Harris, No. 281.
nebulosa n. sp., Harris, No. 281.
roscoei n. sp., Harris, No. 281.
servatoidea Ald., Harris, No. 281.
silicata Ald., Harris, Nos. 280, 281.
 (?) *siphus* Ald., Harris, No. 281.
terebialis Ald. var., Harris, No. 281.
tombigbeensis Ald., Harris, No. 281.
vaughani var. *sylværupis*, Harris, No. 281.
veatchi n. sp., Harris, No. 281.
 (Mangilia) *infans* Har., Harris, No. 281.
Pleurotomaria de France, Grabau, No. 229.
capillaria Conrad, Grabau, No. 229.
isaacsi Hall and Whitfield (?), Girty, No. 223.
itys Hall, Grabau, No. 229.
lucinia Hall, Grabau, No. 229.
planidorsalis Hall, Grabau, No. 229.
regulata Hall, Grabau, No. 229.
 (?) sp., Girty, No. 223.
Pleurotomella sigma, n. sp., Harris, No. 281.
veatchi n. sp., Harris, No. 280.
Pocites sp., Hollick, No. 328.

Paleontology—Continued.

Genera and species described—Continued.

- Polygnathus Hinde, Grabau, No. 229.
 crassus Hinde, Grabau, No. 229.
 cristatus Hinde, Grabau, No. 229.
 dubius Hinde, Grabau, No. 229.
 linguiformis Hinde, Grabau, No. 229.
 nasutus Hinde, Grabau, No. 229.
 palmatus Hinde, Grabau, No. 229.
 pennatus Hinde, Grabau, No. 229.
 princeps Hinde, Grabau, No. 229.
 punctatus Hinde, Grabau, No. 229.
 solidus Hinde, Grabau, No. 229.
 truncatus Hinde, Grabau, No. 229.
 tuberculatus Hinde, Grabau, No. 229.
 (?) simplex Hinde, Grabau, No. 229.
 Polygyra caloosaensis n. sp., Johnson, No. 361.
 Polypora McCoy, Grabau, No. 229.
 multiplex Hall, Grabau, No. 229.
 Polypsephis, Hay, No. 286.
 Populus balsamoides Goepf., Knowlton, No. 392.
 daphnogenoides Ward, Knowlton, No. 392.
 glandulifera Heer, Knowlton, No. 392.
 speciosa Ward, Knowlton, No. 392.
 (?) vivaria n. sp., Knowlton, No. 392.
 xantholithensis n. sp., Knowlton, No. 392.
 Porcellia cf., P. rectinoda Win., Weller, No. 711.
 Porites reussiana Duncan, Vaughan, No. 672.
 Posidonomya? spertenuis n. sp., Beede, No. 44.
 recurva n. sp., Beede, No. 44.
 Potamides fulvarupis n. sp., Harris, No. 281.
 Probeloceras n. gen., Clarke, No. 96.
 lutheri Clarke, 1885, Clarke, No. 96.
 Primitia Jones and Hall, Grabau, No. 229.
 pyriformis n. sp., Matthew, No. 468.
 semniculum Jones, Grabau, No. 229.
 Primitiopsis Jones, Grabau, No. 229.
 punctulifera (Hall), Grabau, No. 229.
 Prioniodus Pander, Grabau, No. 229.
 abbreviatus Hinde, Grabau, No. 229.
 acicularis Hinde, Grabau, No. 229.
 (?) alatus Hinde, Grabau, No. 229.
 angulatus Hinde, Grabau, No. 229.
 armatus, Hinde, Grabau, No. 229.
 clavatus Hinde, Grabau, No. 229.
 erraticus Hinde, Grabau, No. 229.
 panderi Hinde, Grabau, No. 229.
 spicatus Hinde, Grabau, No. 229.
 Prionotropis woolgari Meek, Logan, No. 438.
 Prismodietya n. gen., Hall and Clarke, Nos. 275, 276.
 allegania n. sp., Hall and Clarke, Nos. 275, 276.
 amicitiae n. sp., Hall and Clarke, Nos. 275, 276.
 aulophia n. sp., Hall and Clarke, Nos. 275, 276.
 baculum Hall (sp.), Hall and Clarke, Nos. 275, 276.
 banana n. sp., Hall and Clarke, Nos. 275, 276.
 cercidea n. sp., Hall and Clarke, Nos. 275, 276.

Paleontology—Continued.

Genera and species described—Continued.

- Prismodietya choanae n. sp., Hall and Clarke, Nos. 275, 276.
 cithara n. sp., Hall and Clarke, Nos. 275, 276.
 conradi Hall (sp.), Hall and Clarke, Nos. 275, 276.
 corynia n. sp., Hall and Clarke, Nos. 275, 276.
 filitextilis Hall (sp.), Hall and Clarke, Nos. 275, 276.
 narthecia n. sp., Hall and Clarke, Nos. 275, 276.
 palaea n. sp., Hall and Clarke, Nos. 275, 276.
 parallela Hall (sp.), Hall and Clarke, Nos. 275, 276.
 polyhedra n. sp., Hall and Clarke, Nos. 275, 277.
 prismatica Hall (sp.), Hall and Clarke, Nos. 275, 276.
 ptionia n. sp., Hall and Clarke, Nos. 275, 276.
 spectabilis n. sp., Hall and Clarke, Nos. 275, 276.
 telum Hall (sp.), Hall and Clarke, Nos. 275, 276.
 Productella Hall, Grabau, No. 229.
 alifera n. sp., Girty, No. 223.
 cooperensis Swallow, Girty, No. 223.
 navicella Hall, Grabau, No. 229.
 spinulicosta Hall, Grabau, No. 229.
 Productus burlingtonensis Hall?, Girty, No. 222.
 gallatinensis n. sp., Girty, No. 223.
 laevicosta White, Girty, No. 223.
 parviformis n. sp., Girty, No. 223.
 scabriculus Martin, Girty, No. 223.
 semireticulatus (Martin)?, Girty, Nos. 222, 223.
 Proetus Steininger, Grabau, No. 229.
 curvilinearatus Hall, Grabau, No. 229.
 loganensis Hall and Whitfield, Girty, No. 223.
 macrocephalus Hall, Grabau, No. 229.
 peroccidens Hall and Whitfield, Girty, No. 223.
 protuderans Hall, Girty, No. 222.
 rowi (Green), Grabau, No. 229.
 Promacrus cuneatus Hall, Weller, No. 711.
 websterensis n. sp., Weller, No. 711.
 Protagraules priscus Matt., Matthew, No. 468.
 Protagriochorus n. gen., Scott, No. 576.
 Protarea Milne-Edwards and Haime, Lambe, No. 413.
 vetusta Hall, Lambe, No. 413.
 Protoceras Marsh, Scott, No. 576.
 Protogaulus hippos n. gen. (sp. Cope), Riggs, No. 550.
 Protoreodon Scott and Osborn, Scott, No. 576.
 Protosalvinia (Sporangites) huronensis, Ami, No. 10.
 Protosiphon kempianum Matt., Matthew, No. 468.
 Protospyraena gigas n. sp., Stewart, No. 610.

Paleontology—Continued.

Genera and species described—Continued.

- Protylopus Wortman, Scott, No. 576.
 Pseudocopteris Lx., White, No. 720.
 obtusiloba (Brongn.) Lx., White, No. 720.
 squamosa Lx. sp., White, No. 720.
 sp., White, No. 720.
 Pseudoliva scalina Heilp., Harris, No. 281.
 tuberculifera Con., Harris, No. 281.
 vetusta, Harris, No. 281.
 vetusta var., Harris, No. 280.
 Pseudomonotis (?) cf. *hawni* Meek, Beede, No. 43.
 var. *equistriata* ? sp. ? nov., Beede No. 43.
 robusta sp. ? var. ? nov., Beede, No. 43.
 tenuistriata sp. ? var. ? nov., Beede, No. 43.
 Pseudopcopteris macilenta (L. and H.) Lx., White, No. 719.
 squamosa, Lx., White, No. 719.
 Pseudo-perna n. gen., Logan, No. 440.
 attenuata n. sp., Logan, No. 440.
 orbicularis n. sp., Logan, No. 440.
 rugosa n. sp., Logan, No. 440.
 torta n. sp., Logan, No. 440.
 wilsoni n. sp., Logan, No. 438.
 Pterinea Goldfuss, Grabau, No. 229.
 flabella (Conrad), Grabau, No. 229.
 Pterinopecten Hall, Grabau, No. 229.
 conspectus Hall, Grabau, No. 229.
 hermes Hall, Grabau, No. 229.
 undodus Hall, Grabau, No. 229.
 Pteris pseudopennaformis, Hollick, No. 328.
 Pterospermites haguei n. sp., Knowlton, No. 393.
 Pterosphenus schucherti n. gen. et sp., Lucas, No. 445.
 Ptilodictya Loisdale, Grabau, No. 229.
 plumea Hall, Grabau, No. 229.
 Ptilopora sp., Girty, No. 223.
 Ptychoceras near *crassum*, Harris, No. 280.
 Ptychodesma cf. *P. minor* Hall, Weller, No. 711.
 Ptychoparia (E.) affinis Walcott, Walcott, No. 682.
 antiqua Salter sp., Walcott, No. 682.
 (?) *diademata* Hall sp., Walcott, No. 682.
 llanoensis Walcott (?), Walcott, No. 682.
 penfieldi n. sp., Walcott, No. 682.
 (*Lonochocephalus*) *wisconsensis* Owen sp., Walcott, No. 682.
 sp. undet., Walcott, No. 682.
 Pycnodus phaseolus, Hay, No. 286.
 Pycnopecten Hall, Grabau, No. 229.
 orbiculatus Hall, Grabau, No. 229.
 Pyropsis perula Ald., Harris, No. 281.
 Quercinium lamarensis n. sp., Knowlton, No. 392.
 Quercophyllum wyomingense n. sp., Fontaine, No. 188.
 culveri n. sp., Knowlton, No. 392.
 Quercus consimilis ? Newby., Knowlton, No. 392.
 ellisiana Lx., Knowlton, No. 392.
 furcinervis americana Kn., Knowlton, No. 392.
 grossidentata n. sp., Knowlton, No. 392.

Paleontology—Continued.

Genera and species described—Continued.

- Quercus—Continued.
 hesperia n. sp., Knowlton, No. 392.
 (?) *magnifolia* n. sp., Knowlton, No. 392.
 microdentata n. sp., Hollick, No. 328.
 wardiana Lx. ?, Ward, No. 690.
 weedii n. sp., Knowlton, No. 392.
 yanceyi n. sp., Knowlton, No. 392.
 sp., Knowlton, No. 392.
 Reptaria Rolle, Grabau, No. 229.
 stolonifera Rolle, Grabau, No. 229.
 Reteporina d'Orbigny, Grabau, No. 229.
 striata Hall, Grabau, No. 229.
 Reticularia cooperensis Swallow, Girty, No. 223.
 cooperensis var., Girty, No. 223.
 (?) *peculiaris* Shumard, Girty, No. 223.
 perplexa (McChesney), Girty, No. 222.
 (?) *subrotunda* Hall, Girty, No. 223.
 Rhabdocarpus multistriatus (Presl.) Lx., White, No. 720.
 (*Pachytesta*) *mansfieldi* Lx., White, No. 720.
 Rhabdosispongia n. gen., Hall and Clarke, Nos. 275, 276.
 amalthea Hall (sp.), Hall and Clarke Nos. 275, 276.
 condroziana n. sp., Hall and Clarke, Nos. 275, 277.
 Rhamnacinium radiatum Felix, Knowlton No. 392.
 Rhamnus cleburni Lx., Hollick, No. 328.
 Rhipidomella Oehlert, Grabau, No. 229.
 burlingtonensis (Hall), Weller, No. 711.
 cyclas Hall, Grabau, No. 229.
 idonea Hall, Grabau, No. 229.
 leucosia Hall, Grabau, No. 229.
 micelini Léveillé, Girty, No. 223.
 oblata Hall, Girty, No. 222.
 var. *emarginata* Hall, Girty, No. 222.
 penelope Hall, Grabau, No. 229.
 vanuxemi Hall, Grabau, No. 229.
 Rhizodus, Hay, No. 286.
 Rhombopora Meek, Grabau, No. 229.
 hexagona (Hall), Grabau, No. 229.
 immersa Hall, Grabau, No. 229.
 lineata Hall, Grabau, No. 229.
 polygona (Hall), Grabau, No. 229.
 reticulata (Hall), Grabau, No. 229.
 tortalina, Grabau, No. 229.
 (?) *transversa* (Hall), Grabau, No. 229.
 Ringicula butleriana Ald., Harris, No. 281.
 butleriana var. *lignitifera* Ald., Harris, No. 281.
 Roemerispongia n. gen., Hall and Clarke, Nos. 275, 276.
 gerolsteinensis F. Roemer (sp.), Hall and Clarke, Nos. 275, 276.
 Romingeria Nicholson, Lambe, No. 413.
 umbellifera Billings (sp.), Lambe, No. 413.
 Rhynchonella gnathopora Meek, Stanton, No. 603.
 myrina Hall and Whitfield, Stanton, No. 603.
 Rhynchospira formosa (Hall), Girty, No. 222.
 Sagenodus copeanus n. sp., Williston, No. 749.
 textilis, Hay, No. 286.

Paleontology—Continued.

Genera and species described—Continued.

- Salix varians* Heer, Knowlton, No. 392.
Sandbergeroceras Hyatt, Clarke, No. 96.
syngonium n. sp., Clarke, No. 96.
Sanguinolites websterensis n. sp., Weller, No. 711.
Sapindopsis variabilis Fontaine, Fontaine, No. 188.
Sapindus affinis Newby., Knowlton, No. 392.
angustifolius Lx., Hollick, No. 328.
grandifoliolus Ward, Knowlton, No. 392.
grandifolioloides n. sp., Knowlton, No. 392.
wardii n. sp., Knowlton, No. 392.
Sapotacites americanus Lx., Hollick, No. 328.
Sassafras mudgii Lx., Ward, No. 690.
Saurocephalus lanciformis, Hay, Nos. 288, 293.
pamphagus, n. sp., Hay, Nos. 288, 293.
Scala, Harris, No. 281.
exquisita Ald., Harris, No. 281.
Scalarituba missouriensis n. gen. et. sp., Weller, No. 711.
Scaphander alabamensis Ald., Harris, No. 281.
ligniticus Ald., Harris, No. 281.
Scaphella demissa Con. var., Harris, No. 281.
heilprini, Harris, No. 281.
Scaphiocrinus sp., Girty, No. 223.
Scaphites, Logan, No. 438.
nodosus, Logan, No. 438.
warreni, Logan, No. 438.
Schizaster lecontei n. sp., Merriam, No. 480.
Schizobolus Ulrich, Grabau, No. 229.
truncatus Hall, Grabau, No. 229.
Schizodus King, Girty, No. 222.
Schizodus King, Grabau, No. 229.
aqualis Hall, Weller, No. 711.
affinis Herrick, Girty, No. 222.
appressus (Conrad), Grabau, No. 229.
meekanus, n. sp., Girty, No. 222.
pandatus, n. sp., Girty, No. 222.
telliniformis, n. sp., Girty, No. 222.
Schizophoria swallowi (Hall), Weller, No. 711.
Sciurus calycinus Cope, Cope, No. 118.
Scleropteris distantifolia n. sp., Fontaine, No. 188.
rotundifolia n. sp., Fontaine, No. 188.
Scutella gabbi Rémond, Merriam, No. 480.
interlineata Stimpson, Merriam, No. 480.
Seminula humulis n. sp., Girty, No. 223.
immatura n. sp., No. Girty, 223.
madisonensis n. sp., Girty, No. 223.
var. pusilla n. var., Girty, No. 223.
Sequoia couttsie Heer, Knowlton, No. 392.
gracilis Heer, Fontaine, No. 188.
langsдорffi (Brongn.) Heer, Knowlton, No. 392.
magnifica n. sp., Knowlton, No. 392.
reichenbachi (Geinitz) Heer, Fontaine, No. 198.
sp. Fontaine, No. 188.
Serpulorbis sylværupis n. sp., Harris, No. 281.
Sigaretus bilix Con., Harris, No. 281.
declivus Con., Harris, Nos. 280, 281.
Sigillaria sigillarioides (Lx.), White, No. 720.
(Asolanus) camptotenaria H. C. Wood, White, No. 720.

Paleontology—Continued.

Genera and species described—Continued.

- Sipho tuomeyi* Ald., Harris, No. 281.
Siphonalia subscarlina Heilp., Harris, No. 281.
sp. Harris, No. 281.
Smilax lamarensis n. sp., Knowlton, No. 392.
Smilodon mercerii Cope, Cope, No. 118.
Solariella louisiana Dall., Harris, No. 281.
Solarium bellense n. sp., Harris, Nos. 280, 281.
cupola Heilp., Harris, No. 281.
elaboratum Con., Harris, No. 281.
var. delphinuloides Heilp., Harris, No. 281.
var. intusum n. var., Harris, No. 281.
huppertzi Har. var., Harris, No. 281.
greggi Har., Harris, No. 281.
leanum Dall., Harris, No. 281.
sylværupis Har., Harris, No. 281.
Solenomya parallela n. sp., Beede and Rogers, No. 46.
Solenopleura? weedi, Walcott, No. 682.
Somphospongia n. gen., Beede, No. 44.
multiformis, n. sp., Beede, No. 44.
Sphenolepidium kurrianum (Dunker) Heer, Fontaine, No. 188.
parceramosum Fontaine, Fontaine, No. 188.
Sphenophyllum cuneifolium (Stb.) Zeill., White, No. 719.
emarginatum Brongn., White, No. 720.
lescurianum n. sp., White, No. 720.
majus Brongn., White, No. 720.
suspectum n. sp., White, No. 719.
(Asterophyllites?) fasciculatum (Lx.), White, No. 720.
Sphenopteris brittsii Lx., White, No. 720.
canneltonensis n. sp., White, No. 720.
capitata n. sp., White, No. 720.
chærophylloides (Brongn.) Presl., White, No. 720.
cristata (Brongn.) Presl., White, No. 720.
illinoisensis n. sp., White, No. 720.
lacoëi D. W., White, No. 720.
missouriensis n. sp., White, No. 720.
mixta Schimp., White, No. 720.
pinnatifida (Lx.), White, No. 720.
plurinervia Heer?, Fontaine, No. 188.
subcrenulata (Lx.), White, No. 720.
suspecta n. sp., White, No. 720.
sp., White, No. 720.
Sphenopteris taffii n. sp., White, No. 719.
van ingeni n. sp., White, No. 720.
wardiana, n. sp., White, No. 720.
(Crossothea) ophioglossoides (Lx.), White, No. 720.
(Hymenotheca) broadheadi n. sp., White, No. 720.
Sphenotus Hall, Grabau, No. 229.
truncatus (Conrad), Grabau, No. 229.
Spirialis choctavensis Ald., Harris, No. 281.
elongatoidea Ald., Harris, No. 281.
Spirifer Sowerby, Grabau, No. 229.
angustus Hall, Grabau, No. 229.
asper Hall, Grabau, No. 229.
audaculus (Conrad), Grabau, No. 229.
var. eatoni Hall, Grabau, No. 229.

Paleontology—Continued.

Genera and species described—Continued.

Spirifer—Continued.

- centronatus Winchell, Girty, No. 223.
 var. *semifurcatus* n. var., Girty, No. 223.
consobrinus d'Orbigny, Grabau, No. 229.
engelmanni Meek, Girty, No. 223.
granulosus (Conrad), Grabau, No. 229.
 var. *clintoni* Hall, Grabau, No. 229.
macronotus Hall, Grabau, No. 229.
marionensis Shumard (?) Girty, No. 223.
marionensis Shumard, Weller, No. 711.
mucronatus Conrad, Grabau, No. 229.
rockymontanus Marcou, Girty, No. 222.
striatus var. *madisonensis* n. var., Girty, No. 223.
subattenuatus Hall, Girty, No. 223.
tullius Hall, Grabau, No. 229.
 (*Delthyris*) *sculptilis* (Hall), Grabau, No. 229.
 (*Martinia*) *subumbonus* Hall, Grabau, No. 229.
 (*Reticularia*) *fimbriatus* (Conrad), Grabau, No. 229.
 sp. Girty, No. 223.
Spiriferina solidirostris White, Girty, No. 223.
Spirophyton sp., Weller, No. 711.
Spirorbis Lamarck, Grabau, No. 229.
angulatus Hall, Grabau, No. 229.
Stearoceras gibbosum Hyatt, Girty, No. 222.
Steganoblastus canadensis, White, No. 725.
Stemmatia bicristatus, Hay, No. 286.
bifurcatus, Hay, No. 286.
cheiriformis, Hay, No. 286.
compactus, Hay, No. 286.
keokuk, Hay, No. 286.
symmetricus, Hay, No. 286.
Stiboriopsis n. gen., Vaughan, No. 672.
jamaicensis n. sp., Vaughan, No. 672.
Stictopora Hall, Grabau, No. 229.
palmipes Hall, Grabau, No. 229.
permarginata Hall, Grabau, No. 229.
recta Hall, Grabau, No. 229.
sinuosa Hall, Grabau, No. 229.
Stictoporella (?) sp., Girty, No. 223.
Stigmaria evenii Lx., White, No. 720.
verrucosa (Martin) S. A. Miller, White, No. 720.
Straparollus Montfort, Grabau, No. 229.
rudis Hall, Grabau, No. 229.
utahensis Hall and Whitfield, Girty, No. 223.
 ? sp., Weller, No. 711.
Streblotrypa Ulrich, Grabau, No. 229.
hamiltonense (Nicholson), Grabau, No. 229.
Streptelasma Hall, Grabau, No. 229.
rectum, Hall, Grabau, No. 229.
ungula Hall, Grabau, No. 229.
waynense (Safford), White, No. 222.
Strepula Jones and Hall, Grabau, No. 229.
sigmoidalis Jones, Grabau, No. 229.
Striatopora Hall, Lambe, No. 413.
flexuosa Hall, Lambe, No. 413.
linneana Billings, Lambe, No. 413.

Paleontology—Continued.

Genera and species described—Continued.

- Strophalosia* King, Grabau, No. 229.
truncata (Hall), Grabau, No. 229.
Stropheodonta, Hall, Grabau, 229.
demissa Conrad, Grabau, No. 229.
concava Hall, Grabau, No. 229.
plicata Hall, Grabau, No. 229.
 (*Leptostrophia*) *perplana* Conrad, Grabau, No. 229.
 (*Donvillina*) *inæquistriata* (Conrad), Grabau, No. 229.
 (*Pholidostrophia*) *nacrea* (Hall), Grabau, No. 229.
 (*Leptostrophia*) *junia* Hall, Grabau, No. 229.
Strophocrinus dicyclicus n. gen. et sp., Sarseson, No. 565.
Stylarea von Seebach, Lambe, No. 413.
parva Billings (sp.), Lambe, No. 413.
Stylolina Karpinsky, Grabau, No. 229.
fissurella Hall, Grabau, No. 229.
spica (Hall), Grabau, No. 229.
Stylococenia duerdeni n. sp., Hill, No. 672.
Surcula nasuta Whitf., Harris, No. 281.
Sycium cloacinum Cope, Cope, No. 118.
Syringolites Hinde 1879, Lambe, No. 413.
huronensis Hinde, Lambe, No. 413.
Syringopora Goldfuss, Lambe, No. 413.
aculeata n. sp., Girty, No. 223.
bifurcata Lonsdale, Lambe, No. 413.
compacta Billings, Lambe, No. 413.
dalmanii Billings, Lambe, No. 413.
hisingeri Billings, Lambe, 413.
infundibula Whitfield, Lambe, No. 413.
intermedia Billings, Lambe, No. 413.
maclurei Billings, Lambe, No. 413.
nobilis Billings, Lambe, No. 413.
perelegans Billings, Lambe, No. 413.
ramulosa Goldfuss, Lambe, No. 413.
reticulata Goldfuss, Lambe, No. 413.
retiformis Billings, Lambe, No. 413.
surcularia n. sp., Girty, No. 223.
verticillata Goldfuss, Lambe, No. 413.
Syringotheris carteri (Hall), Weller, No. 711.
carteri Hall, Girty, No. 223.
Syrnola dalli Coss. var., Harris, No. 281.
trapaquara Har. n. sp., Harris, No. 281.
Tæniophyllum latifolium n. sp., White, No. 720.
Tæniopteris ? *missouriensis* D. W., White, No. 720.
Tænipora Nicholson, Grabau, No. 229.
exigua Nicholson, Grabau, No. 229.
Tapirus haysii Leidy, Cope, No. 118.
Taxites olrki Heer, Knowlton, No. 392.
Taxocrinus Phillips, Grabau, No. 229.
nuntius Hall, Grabau, No. 229.
Tancredia ? *knowltoni* n. sp., Stanton, No. 603.
Teinostoma subangulatus Meyer, Harris, No. 281.
Teleopternus Cope, Cope, No. 118.
orientalis Cope, Cope, No. 118.
Tellinopsis Hall, Grabau, No. 229.
submarginata (Conrad), Grabau, No. 229.
Telmaticyon n. gen., Marsh, No. 464.

Paleontology—Continued.

Genera and species described—Continued.

- Tentaculites Schlotheim, Grabau, No. 229.
 bellulus Hall, Grabau, No. 229.
 gracilistriatus Hall, Grabau, No. 229.
 Terebratulina sp., Harris, No. 280.
 Terebrifusus amœnus Con., Harris, No. 281.
 Testudo gilbertii, Hay, No. 289.
 Tetracalodon (Tetrabelodon) shephardii
 Cope, Wagner, No. 679.
 Tetradium Dana, Lambe, No. 413.
 fibratum Safford, Lambe, No. 413.
 Tetranthera præcursoria Lx., Hollick, No. 328.
 Thammodictya Hall, Hall and Clarke, Nos. 275,
 277.
 newberryi Hall, Hall and Clarke, Nos. 275,
 277.
 ortonii n. sp., Hall and Clarke, Nos. 275, 277.
 Thetis sp., Harris, No. 280.
 Thracia weedi n. sp., Stanton, No. 603.
 ? montanaensis (Meck) ?, Stanton, No. 603.
 Thrysopteris brevifolia Fontaine, No. 188.
 brevipennis Fontaine ?, Fontaine, No. 188.
 crassinervis Fontaine, Fontaine, No. 188.
 dentifolia n. sp., Fontaine, No. 188.
 elliptica Fontaine, No. 188.
 pecepteroides Fontaine, Fontaine, No. 188.
 pinnatifida Fontaine ?, Fontaine, No. 188.
 Thysanodictya n. gen., Hall and Clarke, Nos.
 275, 276, 277.
 apleta n. sp., Hall and Clarke Nos. 275, 276.
 edwin-halli nom. nov., Hall and Clarke,
 Nos. 275, 276.
 hermenia n. sp., Hall and Clarke, Nos. 275,
 276.
 johnstoni n. sp., Hall and Clarke, Nos. 275,
 276.
 pœcilus n. sp., Hall and Clarke, Nos. 275,
 276.
 quasillum n. sp., Hall and Clarke, Nos. 275,
 276.
 randalli Hall (sp.), Hall and Clarke, Nos.
 275, 276.
 rudis Hall (sp.), Hall and Clarke, Nos. 275,
 276.
 saccus n. sp., Hall and Clarke, Nos. 275, 276.
 scyphina n. sp., Hall and Clarke, Nos. 275,
 276.
 turricula n. sp., Hall and Clarke, Nos. 275,
 276.
 ?Titanophyllum brittsii n. sp., White, No. 720.
 Tornatellæ bella Con., Harris, No. 281.
 Tornatina leai Ald., Harris, No. 281.
 Tornoceras Hyatt, Clarke, No. 96.
 bicostatum Hall (sp.), Clarke, No. 96.
 peracutum Hall (sp.), Clarke, No. 96.
 rhysum n. sp., Clarke, No. 96.
 uniangulare Conrad (sp.), Clarke, No. 96.
 var. compressum n. var., Clarke, No. 96.
 var. obesum n. var., Clarke, No. 96.
 Toxaspis anguillulatus Cope, Cope, No. 118.
 Toxylon longipetiolatum n. sp., Hollick, No.
 328.
 Trachypora Milne-Edwards and Haime,
 Lambe, No. 413.
 Trachypora E. and H., Grabau, No. 229.
 elegantula Billings, Lambe, No. 413.
 limbasa (Eaton), Grabau, No. 229.

Paleontology—Continued.

Genera and species described—Continued.

- Trapa microphylla Lx., Knowlton, No. 392.
 Trematospira Hall, Grabau, No. 229.
 gibbosa, Grabau, No. 229.
 (Billings) ?, Girty, No. 222.
 Triboloceras digonum (M. and W.) ?, Weller,
 No. 711.
 Trigeria Bayle, Grabau, No. 229.
 (?) lepada Hall, Grabau, No. 229.
 Trigonia elegantissima Meek, Stanton, No. 603.
 eufaulensis Harris, No. 280.
 montanaensis Meek, Stanton, No. 603.
 Triton tuomeyi Ald., Harris, No. 281.
 (Epidromus) otopsis Con., Harris, No. 281.
 (Ranularia) eocensis Ald., Harris, No. 281.
 Tritonidea johnsoni Ald., Harris, No. 281.
 pachecoi n. sp., Harris, No. 280.
 Triumphis hatchetigbeensis Ald., Harris, No.
 281.
 Trochoseris catadupensis n. sp., Vaughan, No.
 672.
 Trochosmia hilli n. sp., Vaughan, No. 672.
 Trophon caudatoides Ald., Harris, No. 281.
 elegantissimus Ald., Harris, No. 281.
 gracilis Ald., Harris, No. 281.
 sublevis n. sp., Harris, No. 281.
 Tropidodiscus cyrtolites (Hall), Weller, No. 711.
 Tropidoleptus Hall, Grabau, No. 229.
 carinatus (Conrad), Grabau, No. 229.
 Tuba antiquata Con., Harris, No. 281.
 Turbinella (Glyptostyla) ? baculus Ald., Har-
 ris, No. 281.
 Turbinoserie Duncan, Vaughan, No. 672.
 cantabridgiensis n. sp., Vaughan, No. 672.
 jamaicaensis n. sp., Vaughan, No. 672.
 Turbonilla sp., Harris, No. 281.
 Turritella clevelandia Ald. var., Harris, No.
 281.
 humerosa Con., Harris, Nos. 280, 281.
 mortoni Con., Harris, Nos. 280, 281.
 præincta Con., Harris, No. 281.
 Tylodictya n. gen., Hall and Clarke, Nos. 275,
 277.
 (?) tenuis Hall (sp.) Hall and Clarke, Nos.
 275 and 277.
 warrenensis n. sp., Hall and Clarke, Nos.
 275 and 277.
 Tylosaurus dyspelor, Cope, Osborn, No. 508.
 Typodus, Hay, No. 286.
 Ulmiphyllum densinerve n. sp., Fontaine,
 No. 188.
 Ulmus minima ? Ward, Knowlton, No. 392.
 pseudo-fulva ? Lx., Knowlton, No. 392.
 tenuinervis, Hollick, No. 328.
 Umbrella sylværupis n. sp., Harris, No. 281.
 Uintacrinus, Springer, No. 598.
 Uncia inexpectata Cope, Cope, No. 118.
 Uncinulus ? acutiplicatus (Hall), Girty, No. 222.
 pyramidatus Hall ?, Girty, No. 222.
 Unitrypa Hall, Grabau, No. 229.
 scalaris Hall, Grabau, No. 229.
 Ursus americanus Pallas, Cope, No. 118.
 haplodon Cope, Cope, No. 118.
 Venericardia planicosta, Harris, No. 280.
 Veniella sp., Harris, No. 280.
 Viburnites evansanus Ward, Ward, No. 690.

Paleontology—Continued.*Genera and species described*—Continued.

- Viburnum rotundifolium* Lx., Knowlton, No. 392.
- Vitulina* Hall, Grabau, No. 229.
pusulosa Hall, Grabau, No. 229.
- Voluta clara* n. sp., Harris, No. 281.
- newcombiana* Whitf., Harris, No. 281.
 sp., Harris, No. 281.
- Volutilithes petrosus* Con., Harris, Nos. 280, 281.
- Volvaria* (*Volvariella*) *alabamiensis* Ald., Harris, No. 281.
- Vulpes cinereoargentatus*, Cope, No. 118.
latidentatus, n. sp., Cope, No. 118.
- Weichselia reticulata* (Stokes & Webb) Ward n. comb., Fontaine, No. 188.
- Williamsonia?* *phoenicopsoides* Ward n. sp., Fontaine, No. 188.
- Woodwardia preareolæa* n. sp., Knowlton, No. 392.
- Xenodus hertzeri*, Hay, No. 286.
- Xenophora conchyliophora* Born., Harris, No. 281.
- Xiphactinus* Leidy, Stewart, No. 608.
brachygnathus n. sp., Stewart, No. 610.
- Yoldia glabra* n. sp., Beede and Rogers, No. 46.
- Zaconthoides* sp. undet., Walcott, No. 682.
- Zamenis acuminatus* Cope, Cope, No. 118.
- Zamites borealis* Heer, No. 188.
brevipennis Heer, Fontaine, No. 188.
 (?) sp., Fontaine, No. 188.
- Zaphrentis Rafinesque*, Grabau, No. 229.
gigantea Lesueur sp., Lambe, No. 414.
minas Dawson, Lambe, No. 414.
mirabilis Billings sp., Lambe, No. 414.
simplex Hall, Grabau, No. 229.
- Zephyroceras cataphractum* n. sp., Clarke, No. 96.
holzapfeli n. sp., Clarke, No. 96.
- Zizyphus serrulata* Ward, Knowlton, No. 392.

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- Gold deposits of Panama, Hershey, No. 302.
- Sur l'âge des couches traversées par le canal de Panama, Douvillé, No. 165.

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- Bone cave at Port Kennedy, Mercer, No. 479.
- Clays of Pennsylvania, Hopkins, No. 334.
- Feldspars and kaolins, Hopkins, No. 335.
- Igneous rocks of York Haven, Ehrenfeld, No. 169.
- Monazite in Delaware County, Hamilton, No. 278.
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- Plea for popular exposition of lithology, Gratacap, No. 258.
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- Big Trees folio, Turner and Ransome, No. 639.
- Geology of Point Reyes Peninsula, Anderson, No. 16.
- Granitic rocks of the Sierra Nevada, Turner, No. 633.
- Replacement ore deposits, Turner, No. 634.

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- A new analcite rock, Coleman, No. 107.
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- Geology of Nipissing and Temiscaming map sheets, Barlow, No. 32.

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- Elmoro folio, Hills, No. 319.
- Granite breccias of Grizzly Peak, Stone, No. 614.
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Connecticut.

- Granite-gneiss in Connecticut, Westgate, No. 717.

Indian Territory.

- Geologic notes on Wichita Mountains, Vaughan, No. 671.

Jamaica.

- Geology of Jamaica, Hill, No. 313.

Maine.

- Andesite of Aroostook volcanic area, Gregory, No. 260.
- Dikes of Johns Bay, Bascom, No. 39.

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- Geology of eastern Berkshire County, Emerson, No. 176.
- Geology of Wachusett dam and tunnel, Crosby, No. 121.
- Petrographic province of Essex County, Washington, Nos. 694, 695, 696, 697.

Mexico.

- El Real del Monte, Ordoñez and Rangel, No. 503.
- Geología de los Alrededores de Orizaba, Böse, No. 56.

Michigan.

- Crystal Falls iron-bearing district, Clements and Smyth, No. 105.
- Felsites and associated rocks, Hubbard, No. 343.
- Report on Isle Royale, Lane, No. 417.

Minnesota.

- Geology of Hibbing plate, Winchell, No. 761.
- Gneisses, gabbro-schists, and associated rocks, Hall, No. 272.

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Report of field work, Elftman, No. 178.

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Fort Benton folio, Weed, No. 701.

Granite rocks of Butte, Weed, No. 704.

Little Belt Mountains folio, Weed, No. 702.

New Hampshire.

Unusual orientation in phenocrysts, Fuller, No. 196.

New Jersey.

Occurrence of nepheline-syenite, Ransome, No. 540.

Palisade diabase, Irving, No. 357.

Structure and composition of trap, Phillips, No. 525.

New York.

Augite-syenite-gneiss, Cushing, No. 132.

Geology of Adirondack region, Smyth, No. 596.

Intrusion in Inwood limestone, Eckel, No. 168.

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Newark system, Kümmel, No. 396.

Pennsylvania.

Igneous rocks of York Haven, Ehrenfeld, No. 169.

Utah.

Geology of Tintic district, Tower and Smith, No. 632.

Virginia.

Geology of Richmond Basin, Shaler and Woodworth, No. 581.

Washington.

Tacoma folio, Willis and Smith, No. 746.

Wyoming.

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Absarokite-shoshonite-banakite series, Yellowstone National Park, Iddings, No. 349.

Geology of Gallatin Mountains, Iddings and Weed, No. 354.

Igneous rocks of Absaroka Range, Iddings, No. 348.

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Notes on rocks from Wyoming, Hill, No. 311.

Recent basalts, Iddings, No. 351.

Tertiary volcanoes of Absaroka Range, Hague, No. 270.

The rhyolites, Yellowstone National Park, Iddings, No. 350.

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Akerite, Cushing, No. 132.

Amphibolite, Turner and Ransome, No. 639.

Analcite rock, Coleman, No. 107.

Analcitite, Bascom, No. 37.

Andesite, Gregory, No. 260.

Andesite, Hague, No. 268.

Andesite, Iddings, Nos. 347, 348.

Andesite, Tower and Smith, No. 632.

Andesite-porphyrus, Weed, No. 702.

Andesitic tuff, Turner and Ransome, No. 639.

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Aplite, Washington, No. 695.

Aplite, Weed, No. 704.

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Augite-syenite-gneiss, Cushing, No. 132.

Banakite, Cushing, No. 132.

Banakite, Iddings, No. 349.

Basalt, Hague, No. 268.

Basalt, Iddings, Nos. 347, 351.

Basalt, Lord, No. 442.

Basalt, Turner and Ransome, No. 639.

Basalt, Weed, Nos. 701, 702.

Biotite-granite, Clements and Smyth, No. 105.

Biotite-granite, Turner, Nos. 633, 635.

Camptonite, Bascom, No. 37.

Camptonite, Washington, No. 696.

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Diabase, Barlow, No. 32.

Diabase, Bascom, No. 39.

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Diabase, Lane, No. 417.

Diabase, Washington, No. 696.

Diorite, Clements and Smyth, No. 105.

Diorite, Crosby, No. 121.

Diorite, Iddings, No. 347.

Diorite, Washington, No. 694.

Diorite-monzonite, Cross, No. 128.

Diorite-porphyrus, Lord, No. 442.

Diorite, porphyritic, Washington, No. 694.

Essexite, Washington, No. 694.

Gabbro, Barlow, No. 32.

Gabbro, Clements and Smyth, No. 105.

Gabbro, Iddings, No. 347.

Gabbro, Turner, No. 635.

Gabbro, Turner and Ransome, No. 639.

Gabbro, Washington, No. 694.

Gabbro-diorite, Cross, No. 128.

Gabbro-diorite, Lord, No. 442.

Gabbro-schist, Hall, No. 272.

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[Bulletin 172.]

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"The publications of the Geological Survey shall consist of the annual report of operations, geological and economic maps illustrating the resources and classification of the lands, and reports upon general and economic geology and paleontology. The annual report of operations of the Geological Survey shall accompany the annual report of the Secretary of the Interior. All special memoirs and reports of said Survey shall be issued in uniform quarto series if deemed necessary by the Director, but otherwise in ordinary octavos. Three thousand copies of each shall be published for scientific exchanges and for sale at the price of publication; and all literary and cartographic materials received in exchange shall be the property of the United States and form a part of the library of the organization; and the money resulting from the sale of such publications shall be covered into the Treasury of the United States."

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176. Some Principles and Methods of Rock Analysis, by W. F. Hillebrand.

In preparation:

- Bibliography and Catalogue of the Fossil Vertebrata of North America, by Oliver Perry Hay.

WATER-SUPPLY AND IRRIGATION PAPERS.

By act of Congress approved June 11, 1896, the following provision was made:

"*Provided*, That hereafter the reports of the Geological Survey in relation to the gauging of streams and to the methods of utilizing the water resources may be printed in octavo form, not to exceed one hundred pages in length and five thousand copies in number; one thousand copies of which shall be for the official use of the Geological Survey, one thousand five hundred copies shall be delivered to the Senate, and two thousand five hundred copies shall be delivered to the House of Representatives, for distribution."

Under this law the following papers have been published:

1. Pumping Water for Irrigation, by Herbert M. Wilson. 1896. 8°. 57 pp. 9 pl.
2. Irrigation near Phoenix, Arizona, by Arthur P. Davis. 1897. 8°. 97 pp. 31 pl.
3. Sewage Irrigation, by George W. Rafter. 1897. 8°. 100 pp. 4 pl.
4. A Reconnaissance in Southeastern Washington, by Israel Cook Russell. 1897. 8°. 96 pp. 7 pl.
5. Irrigation Practice on the Great Plains, by Elias Branson Cowgill. 1897. 8°. 39 pp. 12 pl.
6. Underground Waters of Southwestern Kansas, by Erasmuth Haworth. 1897. 8°. 65 pp. 12 pl.
7. Seepage Waters of Northern Utah, by Samuel Fortier. 1897. 8°. 50 pp. 3 pl.
8. Windmills for Irrigation, by E. C. Murphy. 1897. 8°. 49 pp. 8 pl.
9. Irrigation near Greeley, Colorado, by David Boyd. 1897. 8°. 90 pp. 21 pl.
10. Irrigation in Mesilla Valley, New Mexico, by F. C. Barker. 1898. 8°. 51 pp. 11 pl.
11. River Heights for 1896, by Arthur P. Davis. 1897. 8°. 100 pp.
12. Underground Waters of Southeastern Nebraska, by N. H. Darton. 1898. 8°. 56 pp. 21 pl.
13. Irrigation Systems in Texas, by William Ferguson Hutson. 1898. 8°. 67 pp. 10 pl.
14. New Tests of Pumps and Water-Lifts used in Irrigation, by O. P. Hood. 1898. 8°. 91 pp. 1 pl.
15. Operations at River Stations, 1897, Part I. 1898. 8°. 100 pp.
16. Operations at River Stations, 1897, Part II. 1898. 8°. 101-200 pp.
17. Irrigation near Bakerfield, California, by C. E. Grunsky. 1898. 8°. 96 pp. 16 pl.

18. Irrigation near Fresno, California, by C. E. Grunsky. 1898. 8°. 94 pp. 14 pl.
19. Irrigation near Merced, California, by C. E. Grunsky. 1899. 8°. 59 pp. 11 pl.
20. Experiments with Windmills, by T. O. Perry. 1899. 8°. 97 pp. 12 pl.
21. Wells of Northern Indiana, by Frank Leverett. 1899. 8°. 82 pp. 2 pl.
22. Sewage Irrigation, Part II, by George W. Rafter. 1899. 8°. 100 pp. 7 pl.
23. Water-right Problems of the Bighorn Mountains, by Elwood Mead. 1899. 8°. 62 pp. 7 pl.
24. Water Resources of the State of New York, Part I, by G. W. Rafter. 1899. 8°. 99 pp. 13 pl.
25. Water Resources of the State of New York, Part II, by G. W. Rafter. 1899. 8°. 101-200 pp. 12 pl.
26. Wells of Southern Indiana (Continuation of No. 21), by Frank Leverett. 1899. 8°. 64 pp.
27. Operations at River Stations for 1898, Part I. 1899. 8°. 100 pp.
28. Operations at River Stations for 1898, Part II. 1899. 8°. 101-200 pp.
29. Wells and Windmills in Nebraska, by Erwin H. Barbour. 1899. 8°. 85 pp. 27 p..
30. Water Resources of the Lower Peninsula of Michigan, by Alfred C. Lane. 1899. 8°. 97 pp. 7 pl.
31. Lower Michigan Mineral Waters, by Alfred C. Lane. 1899. 8°. 97 pp. 4 pl.
32. Water Resources of Puerto Rico, by Herbert M. Wilson. 1899. 8°. 48 pp. 17 pl.
33. Storage of Water on Gila River, Arizona, by Joseph B. Lippincott. 1900. 8°. 98 pp. 33 pl.
34. Geology and water resources of SE. South Dakota, by J. E. Todd. 1900. 8°. 34 pp. 19 pls.
35. Operations at River Stations, 1899, Part I. 1900. 8°. 100 pp.
36. Operations at River Stations, 1899, Part II. 1900. 8°. 101-198 pp.
37. Operations at River Stations, 1899, Part III. 1900. 8°. 199-298 pp.
38. Operations at River Stations, 1899, Part IV. 1900. 8°. 299-396 pp.
39. Operations at River Stations, 1899, Part V. 1900. 8°. 397-471 pp.

TOPOGRAPHIC MAP OF THE UNITED STATES.

When, in 1882, the Geological Survey was directed by law to make a geologic map of the United States, there was in existence no suitable topographic map to serve as a base for the geologic map. The preparation of such a topographic map was therefore immediately begun. About one-fifth of the area of the country, excluding Alaska, has now been thus mapped. The map is published in atlas sheets, each sheet representing a small quadrangular district, as explained under the next heading. The separate sheets are sold at 5 cents each when fewer than 100 copies are purchased, but when they are ordered in lots of 100 or more copies, whether of the same sheet or of different sheets, the price is 2 cents each. The mapped areas are widely scattered, nearly every State being represented. About 900 sheets have been engraved and printed; they are tabulated by States in the Survey's "List of Publications," a pamphlet which may be had on application.

The map sheets represent a great variety of topographic features, and with the aid of descriptive text they can be used to illustrate topographic forms. This has led to the projection of an educational series of topographic folios, for use wherever geography is taught in high schools, academies, and colleges. Of this series the first two folios have been issued, viz:

1. Physiographic types, by Henry Gannett, 1898, folio, consisting of the following sheets and 4 pages of descriptive text: Fargo (N. Dak.-Minn.), a region in youth; Charleston (W. Va.), a region in maturity; Caldwell (Kans.), a region in old age; Palmyra (Va.), a rejuvenated region; Mount Shasta (Cal.), a young volcanic mountain; Eagle (Wis.), moraines; Sun Prairie (Wis.), drumlins; Donaldsonville (La.), river flood plains; Boothbay (Me.), a fiord coast; Atlantic City (N. J.), a barrier-beach coast.

2. Physiographic types, by Henry Gannett, 1900, folio, consisting of the following sheets and 11 pages of descriptive text: Norfolk (Va.-N. C.), a coast swamp; Marshall (Mo.), a graded river; Lexington (Nebr.), an overloaded stream; Harrisburg (Pa.), Appalachian ridges; Poteau Mountain (Ark.-Ind. T.), Ozark ridges; Marshall (Ark.), Ozark Plateau; West Denver (Colo.), hogbacks; Mount Taylor (N. Mex.), volcanic peaks, plateaus, and necks; Cucamonga (Cal.), alluvial cones; Crater Lakes special (Oreg.), a crater.

GEOLOGIC ATLAS OF THE UNITED STATES.

The Geologic Atlas of the United States is the final form of publication of the topographic and geologic maps. The atlas is issued in parts, or folios, progressively as the surveys are extended, and is designed ultimately to cover the entire country.

Under the plan adopted the entire area of the country is divided into small rectangular districts (designated *quadrangles*), bounded by certain meridians and parallels. The unit of survey is also the unit of publication, and the maps and descriptions of each rectangular district are issued as a folio of the Geologic Atlas.

Each folio contains topographic, geologic, economic, and structural maps, together with textual descriptions and explanations, and is designated by the name of a principal town or of a prominent natural feature within the district.

Two forms of issue have been adopted, a "library edition" and a "field edition." In both the sheets are bound between heavy paper covers, but the library copies are permanently bound, while the sheets and covers of the field copies are only temporarily wired together.

Under the law a copy of each folio is sent to certain public libraries and educational institutions. The remainder are sold at 25 cents each, except such as contain an unusual amount of matter, which are priced accordingly. Prepayment is obligatory. The folios ready for distribution are here listed.

No.	Name of sheet.	State.	Limiting meridians.	Limiting parallels.	Area, in square miles.	Price, in cents.
1	Livingston	Montana..	110°-111°	45°-46°	3,354	25
2	Ringgold	Georgia..	85°-85° 30'	34° 30'-35°	980	25
3	Placerville	California	120° 30'-121°	38° 30'-39°	932	25
4	Kingston <i>a</i>	Tennessee	84° 30'-85°	35° 30'-36°	969	25
5	Sacramento	California	121°-121° 30'	38° 30'-39°	932	25
6	Chattanooga	Tennessee	85°-85° 30'	35°-35° 30'	975	25
7	Pikes Peak <i>a</i>	Colorado..	105°-105° 30'	38° 30'-39°	932	25
8	Sewanee	Tennessee	85° 30'-86°	35°-35° 30'	975	25
9	Anthracite-Crested Butte.	Colorado..	106° 45'-107° 15'	38° 45'-39°	465	50
10	Harpers Ferry ..	West Va..	77° 30'-78°	39°-39° 30'	925	25
11	Jackson	Maryland.				
		California.	120° 30'-121°	38°-38° 30'	938	25
12	Eastillville	Virginia..				
		Kentucky..	82° 30'-83°	36° 30'-37°	957	25
		Tennessee				
13	Fredericksburg ..	Maryland.				
		Virginia..	77°-77° 30'	38°-38° 30'	938	25
14	Staunton	Virginia..				
		West Va..	79°-79° 30'	38°-38° 30'	938	25
15	Lassen Peak	California.	121°-122°	40°-41°	3,684	25
16	Knoxville	Tennessee	83° 30'-84°	35° 30'-36°	925	25
17	Marysville	N. Carolina				
		California	121° 30'-122°	39°-39° 30'	925	25
18	Smartsville	California	121°-121° 30'	39°-39° 30'	925	25
19	Stevenson	Alabama..				
		Georgia..	85° 30'-86°	34° 30'-35°	980	25
20	Cleveland	Tennessee	84° 30'-85°	35°-35° 30'	975	25
21	Pikeville	Tennessee	85°-85° 30'	35° 30'-36°	969	25
22	McMinnville	Tennessee	85° 30'-86°	35° 30'-36°	969	25
23	Nomini	Maryland.				
		Virginia..	76° 30'-77°	38°-38° 30'	938	25
24	Three Forks	Montana..	111°-112°	45°-46°	3,354	50
25	Loudon	Tennessee	84°-84° 30'	35° 30'-36°	969	25
26	Pocahontas	Virginia..				
		West Va..	81°-81° 30'	37°-37° 30'	951	25
27	Morristown	Tennessee	83°-83° 30'		963	25
28	Piedmont	Maryland.				
		West Va..	79°-79° 30'	39°-39° 30'	925	25
29	Nevada City:					
	Nevada City.					
	Grass Valley.					
	Banner Hill..					
30	Yellowstone National Park:	California.	{ 121° 00' 25"-121° 03' 45" 121° 01' 35"-121° 05' 04" 120° 57' 05"-121° 00' 25"	{ 39° 13' 50"-39° 17' 16" 39° 10' 22"-39° 13' 50" 39° 13' 50"-39° 17' 16"	{ 11.65 12.09 11.65	50
	Gallatin Canyon.					
	Shoshone Lake	Wyoming.	110°-111°	44°-45°	3,412	75
31	Pyramid Peak	California.	120°-120° 30'	38° 30'-39°	932	25
32	Franklin	Virginia..				
		West Va..	79°-79° 30'	38° 30'-39°	932	25
33	Briceville	Tennessee	84°-84° 30'	36°-36° 30'	963	25
34	Buckhannon	West Va..	80°-80° 30'	38° 30'-39°	932	25
35	Gadsden	Alabama..	86°-86° 30'	34°-34° 30'	936	25
36	Pueblo	Colorado..	104° 30'-105°	38°-38° 30'	938	50
37	Downieville	California.	120° 30'-121°	39° 30'-40°	919	25
38	Butte Special	Montana..	112° 29' 30"-112° 36' 42"	45° 59' 28"-46° 02' 54"	22.80	50
39	Truckee	California.	120°-120° 30'	39°-39° 30'	925	25
40	Wartburg	Tennessee	84° 30'-85°	36°-36° 30'	963	25
41	Sonora	California.	120°-120° 30'	37° 30'-38°	944	25
42	Nueces	Texas	100°-100° 30'	29° 30'-30°	1,035	25
43	Bidwell Bar	California.	121°-121° 30'	39° 30'-40°	918	25
44	Tazewell	Virginia..				
		West Va..	81° 30'-82°	37°-37° 30'	950	25
45	Boise	Idaho	116°-116° 30'	43° 30'-44°	864	25
46	Richmond	Kentucky	84°-84° 30'	37° 30'-38°	944	25
47	London	Kentucky	84°-84° 30'	37°-37° 30'	950	25
48	Tennile District Special.	Colorado..	106° 8'-106° 16'	39° 22' 30"-39° 30' 30"	55	25
49	Roseburg	Oregon ...	123°-123° 30'	43°-43° 30'	871	25
50	Holyoke	Mass				
		Conn	72° 30'-73°	42°-42° 30'	885	50
51	Big Trees	California	120°-120° 30'	38°-38° 30'	938	25
52	Absaroka:					
	Crandall					
	Ishawooa	Wyoming.	109° 30'-110°	44°-44° 30'	1,706	25
53	Standingstone	Tennessee	85°-85° 30'	36°-36° 30'	963	25

a Out of stock.

No.	Name of sheet.	State.	Limiting meridians.	Limiting parallels.	Area, in square miles.	Price, in cents.
54	Tacoma.....	Washington.	122°-122° 30'	47°-47° 30'	812	25
55	Fort Benton	Montana..	110°-111°	47°-48°	3, 273	25
56	Little Belt Mts ...	Montana..	110°-111°	46°-47°	3, 295	25
57	Telluride	Colorado..	107° 45'-108°	37° 45'-38°	236	25
58	Elmoro	Colorado..	104°-104° 30'	37°-37° 30'	950	25
59	Bristol	Virginia..	82°-82° 30'	36° 30'-37°	957	25
62	Menominee Special	Tennessee } Michigan. }	87° 44'-88° 09'	45° 44'-45° 55'	254	25

STATISTICAL PAPERS.

Mineral Resources of the United States, 1882, by Albert Williams, jr. 1883. 8°. xvii, 813 pp. Price 50 cents.

Mineral Resources of the United States, 1883 and 1884, by Albert Williams, jr. 1885. 8°. xiv, 1016 pp. Price 60 cents.

Mineral Resources of the United States, 1885. Division of Mining Statistics and Technology. 1886. 8°. vii, 576 pp. Price 40 cents.

Mineral Resources of the United States, 1886, by David T. Day. 1887. 8°. viii, 813 pp. Price 50 cents.

Mineral Resources of the United States, 1887, by David T. Day. 1888. 8°. vii, 832 pp. Price 50 cents.

Mineral Resources of the United States, 1888, by David T. Day. 1890. 8°. vii, 652 pp. Price 50 cents.

Mineral Resources of the United States, 1889 and 1890, by David T. Day. 1892. 8°. viii, 671 pp. Price 50 cents.

Mineral Resources of the United States, 1891, by David T. Day. 1893. 8°. vii, 630 pp. Price 50 cents.

Mineral Resources of the United States, 1892, by David T. Day. 1893. 8°. vii, 850 pp. Price 50 cents.

Mineral Resources of the United States, 1893, by David T. Day. 1894. 8°. viii, 810 pp. Price 50 cents.

On March 2, 1895, the following provision was included in an act of Congress:
 "Provided, That hereafter the report of the mineral resources of the United States shall be issued as a part of the report of the Director of the Geological Survey."

In compliance with this legislation the following reports have been published:
 Mineral Resources of the United States, 1894, David T. Day, Chief of Division. 1895. 8°. xv, 646 pp., 23 pl.; xix, 735 pp., 6 pl. Being Parts III and IV of the Sixteenth Annual Report.

Mineral Resources of the United States, 1895, David T. Day, Chief of Division. 1896. 8°. xxiii, 542 pp., 8 pl. and maps; iii, 543-1058 pp., 9-13 pl. Being Part III (in 2 vols.) of the Seventeenth Annual Report.

Mineral Resources of the United States, 1896, David T. Day, Chief of Division. 1897. 8°. xii, 642 pp., 1 pl.; 643-1400 pp. Being Part V (in 2 vols.) of the Eighteenth Annual Report.

Mineral Resources of the United States, 1897, David T. Day, Chief of Division. 1898. 8°. viii, 651 pp., 11 pl.; viii, 706 pp. Being Part VI (in 2 vols.) of the Nineteenth Annual Report.

Mineral Resources of the United States, 1898, David T. Day, Chief of Division. 1899. 8°. viii, 616 pp.; ix, 804 pp., 1 pl. Being Part VI (in 2 vols.) of the Twentieth Annual Report.

The money received from the sale of the Survey publications is deposited in the Treasury, and the Secretary of the Treasury declines to receive bank checks, drafts, or postage stamps; all remittances, therefore, must be by MONEY ORDER, made payable to the Director of the United States Geological Survey, or in CURRENCY—the exact amount. Correspondence relating to the publications of the Survey should be addressed to—

THE DIRECTOR,
 UNITED STATES GEOLOGICAL SURVEY,
 WASHINGTON, D. C.

WASHINGTON, D. C., August, 1900.

[Take this leaf out and paste the separated titles upon three of your catalogue cards. The first and second titles need no addition; over the third write that subject under which you would place the book in your library.]

LIBRARY CATALOGUE SLIPS.

Series.

United States. *Department of the interior.* (*U. S. geological survey.*)

Department of the interior | — | Bulletin | of the | United States | geological survey | no. 172 | [Seal of the department] | Washington | government printing office | 1900

Second title: United States geological survey | Charles D. Walcott, director | — | Bibliography and index | of | North American geology, paleontology, petrology | and mineralogy | for | the year 1899 | by | Fred Boughton Weeks | [Vignette] | Washington | government printing office | 1900

8°. 141 pp.

Author.

Weeks (Fred Boughton).

United States geological survey | Charles D. Walcott, director | — | Bibliography and index | of | North American geology, paleontology, petrology | and mineralogy | for | the year 1899 | by | Fred Boughton Weeks | [Vignette] |

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8°. 141 pp.

[UNITED STATES. *Department of the interior.* (*U. S. geological survey.*) Bulletin 172.]

Subject.

United States geological survey | Charles D. Walcott, director | — | Bibliography and index | of | North American geology, paleontology, petrology | and mineralogy | for | the year 1899 | by | Fred Boughton Weeks | [Vignette] |

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